EXHIBIT 1

EXPERT REPORT OF PETER KELLER

November 9, 2022

HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY

Exhibit
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1. Introduction

1.1. Qualifications

1. I am a Managing Director at Berkeley Research Group, an expert services firm that specializes in economic and financial analysis.

2. I have been involved in financing oil and gas companies and their exploration activities since 1978. My experience includes decades as a commercial banker and over 15 years as a manager of oil and gas direct investment portfolios for a number of large institutional investors, including pension funds and college/university endowments.

3. During that period I managed significant investments offshore in the Gulf of Mexico ("GoM"), primarily for various pension funds of General Motors.

4. My career spans a number of cycles in what has always been a capital-intensive industry that is subject to significant volatility in commodity prices, oilfield service costs, and basic supply and demand.

5. I also had direct experience with Anadarko Petroleum, a commercial banking client of the Bank of New York/BNY Mellon, as I was the head of the bank's Energy Division which covered all banking relationships in the exploration and production, oilfield services, midstream, refining & marketing and pipeline sectors (as well as the utility sector encompassing nuclear, fossil & renewable generation, and transmission & distribution).

6. I earned a bachelor's degree in history, environmental studies, and economics from Williams College in Williamstown, Massachusetts, and have completed courses at the Graduate School of Business Administration at New York University.

7. I am being compensated for my work on this matter at an hourly rate of $665, including for any testimony I may provide in this matter. My compensation is not contingent upon my opinions and conclusions, or the outcome of this matter.

8. My qualifications and testimony from the last four years are summarized in Appendix A.

9. The materials upon which I have relied are listed in Appendix B.

1.2. Executive Summary

10. In February 2009, Anadarko announced that a discovery well in the Shenandoah deepwater oil field in the Gulf of Mexico, referred to herein as Shen-1, had encountered oil.[1]

11. A group of firms partnered with each other to assess the quality, extent, and accessibility of oil in the Shenandoah field, and to develop a plan for extracting oil should economic conditions prove sufficiently favorable. As of January 27, 2014, these partners and their ownership interests were Anadarko (30%); ConocoPhillips (30%); Cobalt International Energy (20%); Venari Resources LLC (10%); and Marathon Oil Corporation (10%) (the "Shenandoah Partners").[2]

12. Anadarko and the Shenandoah Partners would drill five additional wells, which I refer to as Shen-2 through Shen-6, to appraise the field.

13. Anadarko ultimately decided not to sanction the Shenandoah field. On May 2, 2017, after market close, Anadarko announced that they were taking a $467 million impairment charge

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[1] Anadarko Petroleum Corporation, "Anadarko Announces Another Deepwater Gulf of Mexico Discovery," February 4, 2009 (APC-01338356).

[2] Cowen and Company, "Anadarko Petroleum Corporation Initiating Coverage: Initiation: Maximizing NAV Through Portfolio Management," January 27, 2014 (ANADARKO_00000074). These ownership interests changed at various times during the class period.

for the unproved property balance related to the Shenandoah project and expensing $435 million in exploratory drilling costs for Shenandoah, including $267 million previously capitalized for a period greater than one year.[3]

14. Plaintiffs filed suit, alleging, among other things, that Anadarko and four Anadarko executives[4] (collectively "Defendants") "engaged in a fraudulent scheme through various means and methods that operated as a deception on the investing public concerning the size and commercial viability of the Shenandoah project." [5] The class period covers February 20, 2015, through May 2, 2017 (the "Class Period").[6]

1.3. Assignment and Summary of Conclusions

15. I have been asked by Cravath, Swaine & Moore, counsel for Defendants, to analyze the information known to the market about Shenandoah before, during and after the Class Period. In particular, I have been asked to examine disclosures made by Anadarko and the Shenandoah Partners, as well as commentary from market participants and public press, to analyze, based on my experience, what information concerning Shenandoah was in the market both before and during the Class Period. In doing so, I examine how sophisticated and professional investors in the oil and gas industry (referred to herein simply as "investors") understood the statements Plaintiffs allege are misleading, including based on

[3] Anadarko Petroleum Corporation, Q1 2017 10-Q, May 2, 2017, pp. 12-13.

[4] R.A. Walker, Anadarko's Chairman, President, and Chief Executive Officer; Robert G. Gwin, Anadarko's Executive VP of Finance and CFO from May 2013 to November 2018; Robert P. Daniels, Anadarko's Executive VP of International and Deepwater Exploration from May 2013 until December 2016; and Earnest A. Leyendecker, III, Senior VP of Exploration – Gulf of Mexico from February 2014 until April 2015 and Senior VP of International Exploration and Executive VP of International & Deepwater Exploration from August 23, 2016 through October 4, 2017. (Amended Complaint ¶¶ 17-20.)

[5] Amended Complaint ¶ 5(a)-(f).

[6] *Id.* ¶ 1.

additional information publicly available to investors. I understand that this report will be used, among other ways, in support of Defendants' truth-on-the-market defense.

16. Based on this review, and my experience as a commercial banker and manager of oil and gas direct investment portfolios, I find that:

  a. Investors understand that appraisal drilling is a high-risk business subject to uncertainty, and that any decision to invest in and develop an oil field depends on many factors, including the results from each appraisal well, cost of development, prevailing oil prices, and position within the company's entire portfolio.

  b. Investors did not understand Anadarko's pre-Class Period statements as constituting a resource estimate of Shenandoah. Rather, investors at that time understood that Shenandoah was promising but not a sure thing, as Anadarko consistently and properly disclosed that the appraisal was in an early stage or ongoing and that the company needed to perform additional testing and analysis to quantify the resource range.

  c. During the Class Period, the market was aware that:

    i. Anadarko had not made a final decision to develop Shenandoah, and any such decision would be based on multiple factors, such as the price of oil, cost of development, and the potential of Shenandoah compared to the rest of Anadarko's portfolio;

    ii. developing Shenandoah required 20,000 psi technology, which had not been used in any previous developments;

    iii. the Shenandoah prospect was geologically complex and faulted;

    iv. after the drilling of Shen-3 that it did not encounter hydrocarbons;

v. after the drilling of the original hole at Shen-4 that it encountered salt;

vi. the appraisal wells after Shen-2, with the exception of Shen-5, encountered less oil pay than Shen-2, indicating that the resource size might be smaller than originally hoped;

vii. Anadarko would not develop Shenandoah in the commodity price environment existing from early 2016 through the end of the Class Period;

viii. after the drilling of Shen-4, any decision to develop Shenandoah depended on the information gathered from Shen-5 and Shen-6; and

ix. after the drilling of Shen-5, any decision to develop Shenandoah depended on the information gathered from Shen-6.

17. In the remainder of this report, I expand upon and explain the basis for these conclusions.

a. In Section 2, I review general concepts of market efficiency, the type of information that public companies, such as Anadarko, disclose to the market and how it is done, and my methodology for reviewing relevant market disclosures.

b. In Section 3, I provide background information on the Shenandoah field, including a timeline of its exploration and appraisal.

c. In Section 4, I describe the industry for offshore oil & gas exploration and development, and I describe Anadarko's business.

With these background items in place, in Section 5, I review Plaintiffs' allegations in this matter and the related information that was disclosed to the market. I first review disclosures from before the Class Period, followed by disclosures from within the Class Period, and present my conclusions with respect to each type of allegation.

2. Required and Voluntary Disclosures Are Reflected in Efficient Market Prices

2.1. Market Efficiency

18. Plaintiffs contend that Anadarko securities traded in an efficient market during the Class Period.[7] For the purposes of this report, I do not dispute that assertion and assume that the market for Anadarko securities during regular trading hours was efficient.

19. Widely accepted financial theory posits that credible publicly available information, regardless of source, is reflected in the prices of securities that trade actively in public markets. The market for the company's stock is viewed as efficient when the price of the stock is able to quickly reflect new information about the company. As Professor Damodaran of New York University points out, reaction of stock prices to new information is "instantaneous" in an efficient market.[8] In a widely used textbook, Professors Brealey, Myers and Allen describe an efficient market as one in which "prices reflect all the information that can be acquired by painstaking analysis of the company and the economy."[9]

20. In an efficient market, a company's stock price reflects the totality of information publicly available from all resources regarding the company's expected future earnings or cash flows. Typical sources of company information include, for example:

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[7] *See, e.g.*, Expert Report of Bjorn I. Steinholt, CFA, *In re: Anadarko Petroleum Corporation Securities Litigation*, Civ. Action No. 4:20-cv-00576 (S.D. Tex.), dated October 1, 2021, ¶ 9.

[8] Aswath Damodaran, Investment Valuation: Tools and Techniques for Determining the Value of Any Asset, Wiley, 2nd edition, p. 131.

[9] Richard A. Brealey, Stewart C. Myers, and Franklin Allen, Principles of Corporate Finance, 12th edition, p. 332.

a. The company's own disclosures, including SEC filings, press releases, conference calls;

b. Disclosures by partners on the same projects;

c. Analyst reports; and

d. Media coverage, such as news articles.

21. Only new information that materially changes the market's view on the company's expected future earnings or cash flows would significantly affect the stock price.[10] Other information such as the replacement of a director on the board may be new but is generally treated as immaterial by the market and would not significantly affect the stock price.

2.2. Public Information

22. Publicly traded companies, such as Anadarko was prior to August 8, 2019, are required by law to disclose certain information to the public.

23. For example, Anadarko is required by the U.S. Securities and Exchange Commission ("SEC") to submit an annual report of the company's operational results in Form 10-K and quarterly results in Form 10-Q. In such filings, a publicly traded company like Anadarko is required to, among other things, provide a description of its business and report financial performance in standardized forms of financial statements. The company is also required to discuss the risk factors faced by the company and explain its business results and any significant matters. Major developments or events that occur outside the standard reporting

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[10] BMO, "How does breaking news affect markets?," May 5, 2020, p. 1, https://www.bmo.com/main/personal/investments/learning-centre/how-breaking-news-affects-markets/#:~:text=When%20breaking%20news%20comes%20in,price%20movements%20following%20the%20news.

cycle are can be disclosed by filing a Form 8-K. A company can also make voluntary disclosures about its business.[11]

24. Company management may also provide additional information on earning calls. During these earnings calls, company management usually provides background on company financial results and responds to specific questions raised by sophisticated equity research analysts covering the industry and the company. Typically, transcripts of these calls are promptly made available to the public.[12] In addition, company managers from the oil & gas industry often participate in industry conferences and present on specific matters.

25. The market also incorporates information from other market participants. This includes reports from securities analysts, who review and analyze public information to offer guidance to investors regarding specific companies and industries. Investors then use this information to make trading decisions, and the information is rapidly incorporated into a company's stock price.[13]

26. General news and press outlets can also provide information to the investing public. This can include news outlets, magazines and similar sources.

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[11] SEC, "Exchange Act Reporting and Registration," April 28, 2022, https://www.sec.gov/education/smallbusiness/goingpublic/exchangeactreporting; SEC, "Form 10K," t.Investor.gov, https://www.investor.gov/introduction-investing/investing-basics/glossary/form-10-k.

[12] The Street, "What Is an Earnings Call? Definition, Frequency & Importance," June 30, 2022, https://www.thestreet.com/dictionary/e/earnings-call.

[13] Corporate Finance Institute, "Equity Research Report," October 4, 2022, https://corporatefinanceinstitute.com/resources/valuation/equity-research-report/.

27. Finally, the Shenandoah Partners provided important information to the market. The Partners made disclosures and released information about the Shenandoah development, which were incorporated into the market's understanding of Shenandoah.

2.3. Methodology for Identifying Relevant Disclosures and Commentary from Market Participants

28. Given the substantial volume of documents that contain or discuss disclosures related to Shenandoah, I relied on various searches to identify relevant content, which I then considered in forming my opinions. I reviewed the following documents using these searches or by reviewing the source in full:

    a. The Amended Complaint.

    b. Source documents for each of the disclosures Plaintiffs allege to be misleading. These include, for example, conference call transcripts, SEC filings, and conference presentations.[14]

    c. SEC filings from Anadarko and other publicly traded Shenandoah Partners, including ConocoPhillips, Cobalt and Marathon Oil, filed during and up to 2 years before the class period.

    d. Equity research reports from analysts that cover publicly traded Shenandoah Partners. This documentation includes over 400 reports published by approximately 30 different equity analysts.

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[14] Depending on the source, some transcripts attribute statements to the incorrect individuals. While they may identify the incorrect individuals, I assume that the content is complete and substantively accurate.

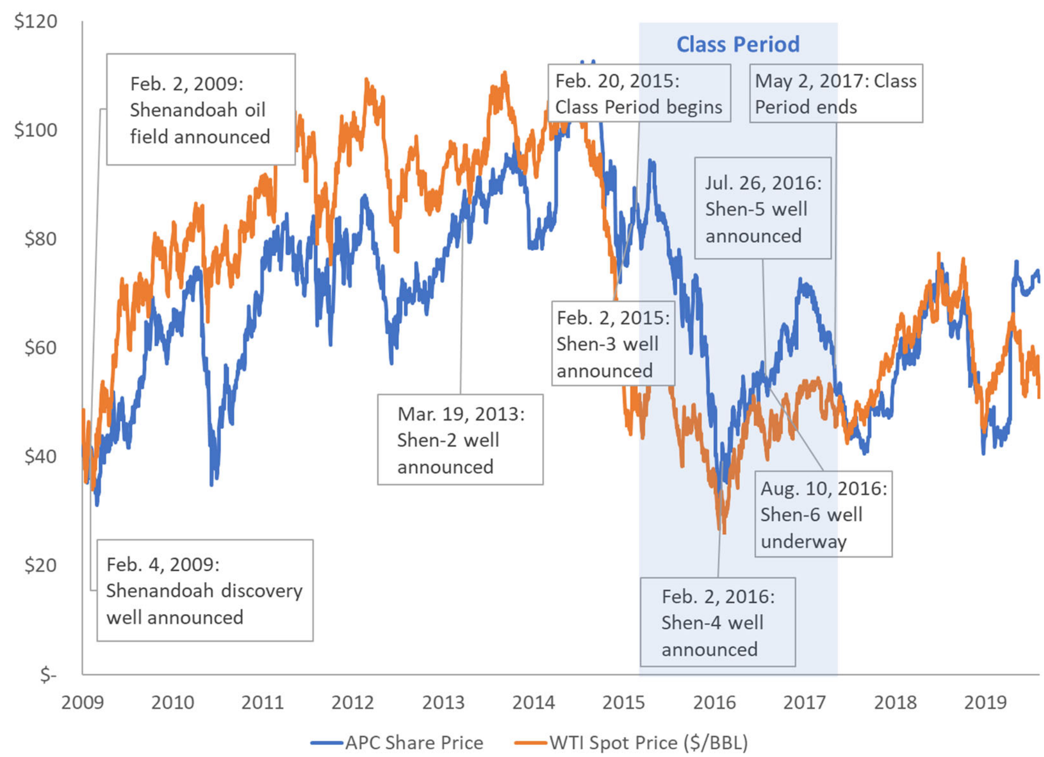
e. Over 20 news articles that mention Anadarko, other Shenandoah Partners, or the Shenandoah wells published during and up to 6 years before the class period.

f. Documents produced in this matter by Plaintiffs' investment managers including, but not limited to, Janus Henderson Group plc, Fidelity, Lord Abbett & Co. LLC, Wellington, and Atalanta Sosnoff Capital.

3. Background on the Shenandoah Field

29. As the focus of Plaintiffs' allegations relate to Anadarko's interest in Shenandoah, which during the Class Period was one of Anadarko's deepwater assets in the Gulf of Mexico, I provide my understanding of Shenandoah in this section. Figure 1 below shows the movement of Anadarko's stock price and WTI spot price, i.e., the price for immediate delivery of West Texas Intermediate grade oil, with the key events related to Shenandoah from 2009 through the end of the Class Period.

Figure 1. Key Shenandoah Events with APC Stock Price and WTI Spot Price



30. On February 4, 2009, Anadarko announced the Shenandoah discovery well, located in Walker Ridge block 52, encountered net oil pay approaching 300 feet in the Wilcox

formation.[15] In the announcement, Bob Daniels, then Anadarko's Sr. Vice President, Worldwide Exploration, was quoted:

> "This has been a remarkable week, with back-to-back deepwater discoveries in the Gulf of Mexico. . . . Initial data indicates the Shenandoah discovery has reservoir properties that appear to be of much higher quality than industry has seen previously in the emerging Lower-Tertiary play. The success of this well and our recent Heidelberg discovery further confirms the value of Anadarko's extensive acreage position and our capability in exploring proven and emerging deepwater basins worldwide."[16]

31. After drilling the exploratory well, Anadarko proceeded to drill its first appraisal well, Shen-2. In March 2013, Anadarko announced that Shen-2 had encountered "more than 1,000 net feet of oil pay":

> "Anadarko Petroleum Corporation (NYSE: APC) today announced its Shenandoah-2 well in the deepwater Gulf of Mexico encountered more than 1,000 net feet of oil pay in multiple high-quality Lower Tertiary-aged reservoirs. 'The successful Shenandoah-2 well marks one of Anadarko's largest oil discoveries in the Gulf of Mexico, with more than 1,000 net feet of oil pay and reservoir rock and fluid properties of much higher quality than previously encountered by industry in Lower Tertiary discoveries,' said Bob Daniels, Anadarko Sr. Vice President Deepwater and International Exploration. 'With ownership in the successful Shenandoah wells, the adjacent Yucatan prospect, and the very encouraging results from the nearby Coronado well, Anadarko is strategically positioned in the Shenandoah Basin, which has the potential to become one of the most prolific new areas in the deepwater Gulf of Mexico.' The Shenandoah-2 well, located in Walker Ridge block 51, was drilled to a total depth of 31,405 feet in approximately 5,800 feet of water, more than 1 mile southwest and approximately 1,700 feet structurally down-dip from the Shenandoah-1 discovery. Similar to the initial Shenandoah discovery well, log and pressure data from the Shenandoah-2 well indicate excellent-quality reservoir and fluid properties. The well was drilled to test the down-dip extent

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[15] Anadarko Petroleum Corporation, "Anadarko Announces Another Deepwater Gulf of Mexico Discovery," February 4, 2009, p. 1 (APC-01335462).

[16] *Id.*

> of the accumulation, and the targeted sands were full to base with no oil-water contact. "We are incorporating the information obtained from Shenandoah-2 into our planning and anticipate further appraisal drilling to advance this potentially giant project," Daniels added. Anadarko is the operator of the Shenandoah-2 well and the previously announced Shenandoah-1 discovery well, located in Walker Ridge block 52, with a 30-percent working interest."[17]

32. Anadarko then drilled the Shen-3 appraisal well. On January 29, 2015, one of the Shenandoah Partners, ConocoPhillips, stated that it had expensed Shen-3 as a "dry hole."[18]

33. On February 2, 2015, Anadarko described the results of its second appraisal well, Shen-3, in its 2014 Operations Report:

> "Drilling of the second Shenandoah appraisal well, Shenandoah-3, concluded in the quarter. The Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered more than 1,000 feet of net oil pay in excellent quality, Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, reservoir qualities and down-dip thickening. The well also enabled the projection of oil/water contacts based on pressure data, and reduced the uncertainty of the resource range. Planning is currently underway for the next appraisal well, which the company expects to spud in the 2nd quarter of 2015."[19]

34. Anadarko announced the results of the next appraisal well, Shen-4, approximately a year later. On February 2, 2016, during its 4Q 2015 earnings call, Anadarko described the Shen-4 appraisal as follows:

> Robert G. Gwin, CEO: "Yes, this is Bob. So we just finished the Shenandoah 4 appraisal wells located out to the west of our previous activities. We found over

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[17] Yahoo Finance, "Anadarko Announces Shenandoah Appraisal Well Encounters More Than 1,000 Net Feet of Oil Pay", March 20, 2013, pp. 1-2, http://finance.yahoo.com/news/anadarko-announces-shenandoah-appraisal-well-200500390.html?soc_src=social-sh&soc_trk=ma.

[18] ConocoPhillips, Q4 2014 Earnings Call Transcript, January 29, 2015, pp. 5, 13–15.

[19] Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015, p. 12.

> 620 feet of high-quality oil play in that well. We're very pleased with it. We also were able to get about 550 feet of core that's important for planning what that development could look like. So that's going to be analyzed, turned over to the reservoir engineers as they put together a scenario for how we might develop that. At the same time, we're looking at drilling Shenandoah 5. We think that's a well that's required. It's off to the East. It'd be kind of between Shenandoah 3 and the original Shenandoah 1, up dip of Shenandoah 3, which was a wet well that encountered very, very good sands, kind of gave us a down-dip limit on the eastern side. So that well should spud here in this first quarter. We have high expectations for it. But we need to drill the well and say, that's what appraisal is all about. Meanwhile, the guys are taking all the information that we obtained from this, rolling it into conceptual planning as to what resources we may be able to recover, how much it might cost, those types of things. And as Al said, we're a long ways from sanction at this point. If Shenandoah 5 is successful, we may move even farther to the east with the Shenandoah 6, but of course, that'll be all dependent on what happens to Shenandoah 5."[20]

35. In July 2016, Anadarko described the results of Shen-5, which encountered more than 1,040 net feet of pay and extended the field further east:

> "The Shenandoah appraisal program continues to deliver promising results with the Shenandoah-5 well encountering more than 1,040 net feet TVT of pay, extending the field further east. The company will spud the Shenandoah-6 appraisal well later this year in an attempt to find the oil water contact. The quality and thickness of the reservoir combined with the excellent fluid properties make Shenandoah a unique Lower Tertiary opportunity."[21]

36. In July 2016, Marathon Oil announced that they would sell their 10% stake in the Shenandoah project. As part of the preferential-right process on Marathon Oil's sale of its 10% interest, Anadarko announced that they increased their working interest in Shenandoah to 33%.[22]

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[20] Anadarko Petroleum Corporation, Q4 2015 Earnings Call Transcript, February 2, 2016, pp. 9-10.

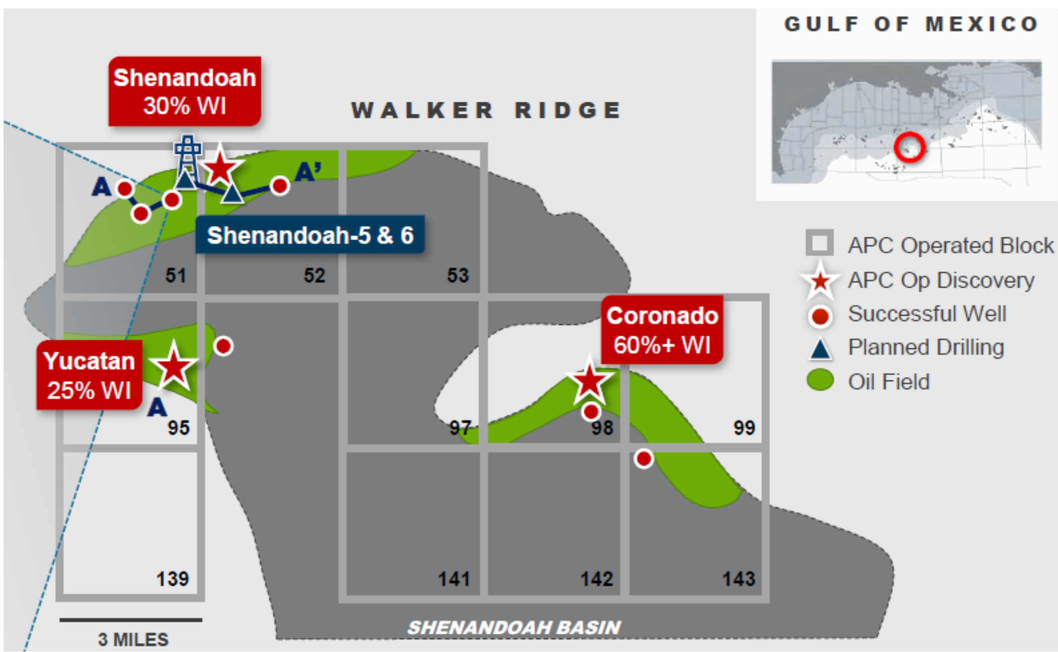
[21] Anadarko Petroleum Corporation, Q2 2016 Operations Report, July 26, 2016, p. 2.

[22] *Id.* p. 9.

37. In its Q3 2016 10-Q, Anadarko announced that they had expensed $64 million related to a Shenandoah well because "it was no longer reasonably possible that the wellbore would be used in the development of the project if a final investment decision is reached."[23]

38. In 4Q 2016, Anadarko spud Shen-6 to establish the oil-water contact on the eastern flank of the field. Figure 2 below shows Anadarko's assets in the Shenandoah basin, including the Shenandoah project. Figure 3 shows the placement of the appraisal wells within Shenandoah and the status of the appraisal wells as of May 2016.

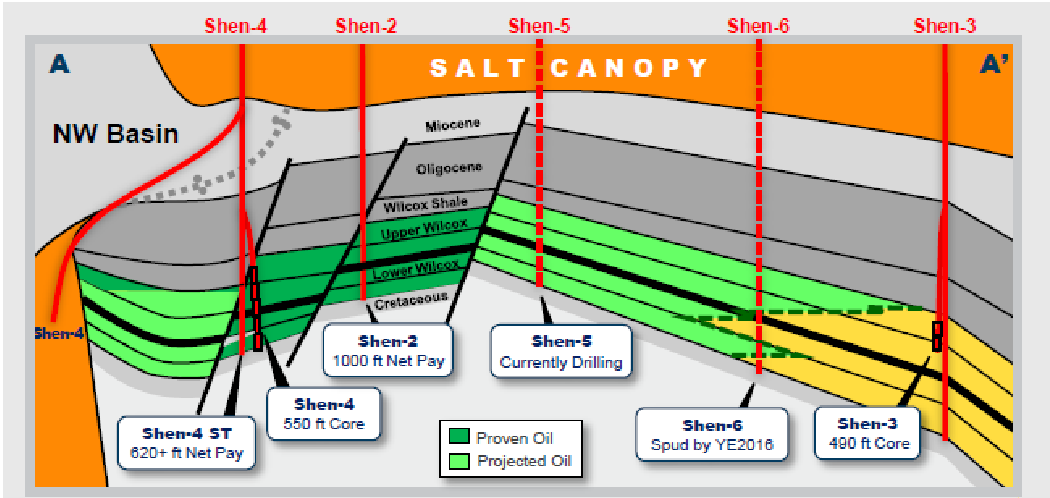
Figure 2. May 2016 Map Prepared by Anadarko[24]



[23] Anadarko Petroleum Corporation, Q3 2016 10-Q, October 31, 2016, p. 11. Cobalt expensed costs associated with Shen-3 in its 2016 10-K. It had incurred dry holes expenses, part of which were attributable to the Shen-3 well because "it [was] no longer reasonably possible that the wellbore could be used in the development of the project, should a final investment decision be reached". Cobalt International Energy Inc., 2016 10-K, March 14, 2017, p. 68.

[24] Anadarko Petroleum Corporation, UBS Global Oil and Gas Conference Slides, May 24, 2016, p. 10.

Figure 3. Placement and Status of Shenandoah Appraisal Wells in May 2016[25]



39. On May 2, 2017, Anadarko disclosed that they had suspended further appraisal activities on the Shenandoah project, taken a $467 million impairment for the unproved property balance related to the Shenandoah project, and expensed $435 million in exploratory drilling costs. Anadarko made the following disclosures in the Form 10-Q:

> "Impairments during the three months ended March 31, 2017, were primarily related to oil and gas properties in the Gulf of Mexico due to lower forecasted commodity prices and a U.S. onshore midstream property due to a reduced throughput fee as a result of a producer's bankruptcy.
>
> **Impairments of Unproved Properties** Impairments of unproved properties are included in exploration expense in the Company's Consolidated Statements of Income. The Company recognized $532 million of impairments of unproved Gulf of Mexico properties during the three months ended March 31, 2017, of which $467 million related to the Shenandoah project. The unproved property balance related to the Shenandoah project originated from the purchase price allocated to Gulf of Mexico exploration projects from the acquisition of Kerr-McGee Corporation in 2006. For additional details on the Shenandoah project, see Note 5—Suspended Exploratory Well Costs.

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[25] *Id.*

> **5. Suspended Exploratory Well Costs**
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> The Company's suspended exploratory well costs were $1.1 billion at March 31, 2017, and $1.2 billion at December 31, 2016. Projects with suspended exploratory well costs include wells that have sufficient reserves to justify completion as a producing well and sufficient progress is being made in assessing the reserves and the economic and operating viability of the project. If additional information becomes available that raises substantial doubt as to the economic or operational viability of any of these projects, the associated costs will be expensed at that time.
>
> During the three months ended March 31, 2017, the Company expensed suspended exploratory well costs of $435 million related to the Shenandoah project in the Gulf of Mexico, including $267 million previously capitalized for a period greater than one year. The Shenandoah-6 appraisal well and subsequent sidetrack, which completed appraisal activities in April 2017, did not encounter the oil-water contact in the eastern portion of the field. Given the results of this well and the present commodity-price environment, the Company has currently suspended further appraisal activities. Accordingly, the Company determined that the Shenandoah project no longer satisfies the accounting requirements for the continued capitalization of the exploratory well costs."[26]

40. Following Anadarko's disclosure that they had suspended further appraisal activities on the Shenandoah project, R.A. Walker, Anadarko's Chairman and CEO, and an analyst for Drexel Hamilton had the following exchange:

> Robert Lee Christensen, Drexel Hamilton, LLC, Research Division: "I just followed with interest Shenandoah all these years and the delineation, and I simply can appreciate the accounting convention and rules. But you have poked a lot of holes out there. You put a lot of science on it. What would you be walking away from in the way of probable and possible reserves from what you've gleaned to date off of a bunch of years of exploration? What are we talking about here?"

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[26] Anadarko Petroleum Corporation, Q1 2017 10-Q, May 2, 2017, pp. 12-13.

> R. A. Walker, Chairman & CEO: "Robert it's an understandable question for which I've got to tell you, I couldn't begin to answer that simply because with this juncture, all we have is drilling results. We've not estimated what we believe to be probable or possible recoveries simply because the things we've been doing to date have been more along the lines of just science associated. We're trying to understand the reservoir better. And I think given the information we gave you in certainly this ops report and those before, you can appreciate the fact that it will be very difficult cost for us to estimate that given where we are in the drilling process, and certainly in the campaign associated with understanding that better."[27]

41. The discussion continued into Q2, with Walker further explaining that Anadarko "continue[ed] to look for opportunities with it [Shenandoah]" and that the "decision there was driven by accounting convention and not economics."[28]

42. In April 2018, Anadarko relinquished its interest in Shenandoah. LLOG Exploration Offshore LLC replaced Anadarko as the operator of Shenandoah. LLOG, Navitas Petroleum US and Beacon Offshore Energy, and Venari Resources LLC formed a partnership for development.[29]

43. Beacon Offshore Energy is the current operator of Shenandoah, with BOE II Exploration, ShenHai (a wholly owned subsidiary of Navitas Petroleum) and HEQ Deepwater as partners. In October 2020, Navitas described Shenandoah as having "[h]ighly attractive economics" and "[p]roven and appraised – FID ready."[30] In August 2021, Navitas called

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[27] Anadarko Petroleum Corporation, Q1 2017 Earnings Call Transcript, May 3, 2017, pp. 23-24.

[28] Anadarko Petroleum Corporation, Q2 2017 Earnings Call Transcript, July 25, 2017, p. 18.

[29] Global Newswire LLOG Exploration Company, L.L.C., "LLOG Exploration Named Operator of Shenandoah Discovery in Gulf of Mexico," April 26, 2018, p. 1.

[30] Navitas Petroleum, Investor Presentation, October 2020, p. 12.

Shenandoah "[t]he [g]ame [c]hanger," and projected a $1.398 billion discounted cash flow value for its share alone.[31]

44. The current partners estimated that developing Shenandoah would cost $1.8 billon. Drilling is expected to begin in the second half of 2022, with the first oil anticipated in the fourth quarter of 2024.[32] According to the most recent Fleet Status Report from Transocean (July 25, 2022), the newbuild Deepwater Atlas was scheduled to commence drilling operations for Beacon in October 2022 at a day-rate of $315,000 through July 2023.[33]

45. Reports about the current development of Shenandoah credit technological advances—in particular, the 20,000 psi (i.e., 20K) technology—which Anadarko indicated early in its exploration of Shenandoah would be necessary.[34] The 20K technology, which allows the safe drilling of high-pressure wells, eliminates "significant cost barriers." [35] Beacon

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[31] Navitas Petroleum, Investor Presentation, August 2021, pp. 4, 5.

[32] NS Energy, "Shenandoah Field Development," p. 1.

[33] Transocean, "Transocean Ltd. Provides Quarterly Fleet Status Report," July 25, 2022, p. 4.

[34] Anna Kachkova, E&P Newsletter, "Shenandoah to Help Push Deepwater Boundaries," February 8, 2022, pp. 2-3, hartenergy.com/ep/exclusives/shenandoah-help-push-deepwater-boundaries-198655 ("The arrival of 20,000-psi drillships onto the market in the coming years means that Shenandoah can now move forward, more than a decade after oil was first discovered at the site by a former operator."); *see also* Offshore Technology, "Shenandoah Deepwater Oil Field, Gulf of Mexico, October 24, 2019, https://www.offshore-technology.com/projects/shenandoah-deepwater-oil-field/. In a November 2014 presentation, Jim Raney, Director of Engineering & Technology at Anadarko, discussed the development concepts and challenges in a 20,000 psi development for the Gulf of Mexico. Anadarko Petroleum Corporation, "Developing Industry Solution for 20,000 psi Subsea Developments," November 19, 2014.

[35] Anna Kachkova, E&P Newsletter, "Shenandoah to Help Push Deepwater Boundaries," February 8, 2022, p. 4, hartenergy.com/ep/exclusives/shenandoah-help-push-deepwater-boundaries-198655 ("[S]ignificant cost barriers have been eliminated with the introduction of the technology required to safely drill and complete these high-pressure wells.").

purportedly sanctioned Shenandoah when it believed the technology, which had been developed over the prior ten years, was ready.[36]

[36] *Id.* ("The Beacon team believed, at the time of sanctioning its Shenandoah project, that the technology was ready, having been developed over the past 10 years.").

4. Investors' Understanding of Anadarko's Industry and Business

46. In this section, I assess what investors understand about the offshore oil and gas business. This provides a background for understanding Anadarko's disclosures about Shenandoah and the totality of information available to investors.

4.1. Offshore Oil and Gas Exploration and Development

4.1.1. Investors understand that appraisal wells are drilled to gather information.

47. Investors understand that the exploration process begins with identifying an initial oil discovery. Oil companies begin the process by conducting geologic surveys of an area in an effort to determine if there might be oil or gas deposits in a given area.[37] Once a company identifies a potential area of interest, it may attempt to secure a lease or multiple leases covering the area. Companies may then drill a discovery well, sometimes referred to as an exploratory well, in search of new, undiscovered and unproved reservoirs.

48. If the initial discovery well yields logs that indicate hydrocarbons in potentially economical volumes, then appraisal or delineation wells are drilled to help define the areal extent, characteristics, and quality of the potential reservoir. Oil companies need information gleaned from appraisal wells to confirm the areal extent of a reservoir, including mapping potential faults; the quality of the reservoir, which involves assessing permeability & porosity; and the commercial viability of a field, which is tied to the cost and timetable of constructing platforms and production facilities, and the location relative to other infrastructure, such as pipelines, tiebacks, and treatment facilities.

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[37] Diamond Offshore, "Offshore Drilling Basics," p. 1.

49. Drilling multiple appraisal wells is particularly important in geologically complex regions that have not been well defined by nearby existing production or analogy, i.e., the presence of other producing wells in the area that provide information on potential reservoirs, or by high quality seismic data. Drilling multiple wells is also important if the target formations are sub-salt, as at Shenandoah, as salt distorts soundwaves and thus affects the seismic readings.

50. Investors understand that during the appraisal process, oil companies create internal resource estimates. Resource estimates from petroleum engineers include subjective determinations and are subject to significant revision, both upwards and downwards, as engineers learn additional information during the appraisal process. In geologically complex regions, as at Shenandoah, multiple appraisal wells may be necessary to give the operator enough certainty of potentially recoverable reserves to justify the decision to proceed with the significant expenditures needed for well completion, development, and construction of platforms and other production facilities.

51. It is common for operators not to release resource ranges for a specific prospect during the appraisal process. Anadarko, for its part, has explained that they do not disclose certain speculative information early in the appraisal process: "When we make announcements of a discovery, we rarely come out with a resource range. We like to keep our resource range about where we were in the exploration phase. We don't have enough data now to come out and say, oh, it's this big with one well. We have enough deepwater experience in our hip pocket that says, okay, one well is an awesome feat. I mean, having pay on a log is really incredible. But really the proof in the pudding in the deepwater is all about areal extent,

and it's got to be quite large. So we don't really come out with a number as we drill the first well."[38]

52. Anadarko does, however, release the results of its appraisal wells and any net pay encountered in those wells: "We also come out on wells, and we give net feet of pay. We don't give gross feet of pay. We don't give gross column, except in certain circumstances to talk about the potential height of a hydrocarbon column. But we give net pay numbers. And these net pay numbers are pretty scrutinized. These are deepwater type of rock qualities. And we throw out things that don't really meet the deepwater rock qualification. We also talk about a recoverable resource when we actually give out a range. And we talk about a recoverable resource within our expectations of what our recovery factors are and only resources that are on our block."[39]

53. Investors understand that resource estimates are distinct from estimates of proved reserves. Unlike resource estimates, proved reserves are those reserves claimed to have a reasonable certainty (normally at least 90% confidence) of being recoverable under existing economic and political conditions, with existing technology.[40] Proved reserves are booked in accordance with standards from the Society of Petroleum Engineers ("SPE") and requirements from the SEC.[41] Oil companies publish their estimates of proved reserves in their annual financial filings.

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[38] Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012, p. 44.

[39] *Id.* pp. 44–45.

[40] Society of Petroleum Engineers, "Guidelines for the Evaluation of Petroleum Reserves and Resources," 2001, p. 45.

[41] Securities and Exchange Commission, 17 CFR Parts 210, 211, 229, and 249 [Release Nos. 33-8995; 34-59192; FR-78; File No. S7-15-08] RIN 3235-AK00, "Modernization Of Oil And Gas Reporting," pp. 10 (footnote 15), 25-33.

4.1.2. Investors understand that oil and gas companies invest a significant amount of money to understand and appraise an oil discovery.

54. Investors understand that offshore projects, especially in deep waters, require significant upfront capital investment. Development costs to drill delineation, production and possibly injection wells, construct production facilities, install a platform and so on can be in the range of $3 - $5 billion.[42]

55. Investors also under that exploration wells cost millions of dollars to drill. For instance, on October 28, 2015, Anadarko noted that they were looking to reduce costs for deepwater Gulf of Mexico drilling, noting that the Heidelberg well in a nearby reservoir had hit "record costs for [them of] less than $100 million"[43] With respect to Shenandoah specifically, Wood Mackenzie estimated that the cost associated with Shen-1 were approximately $215 million and later drilling costs totaled over $800 million.[44]

56. If a company decides to invest in a project, the company will incur even more costs. The production platforms that are suitable for offshore environment include: fixed platforms, compliant tower, tension leg platforms, floating production system, subsea system, and Floating Production, Storage & Offloading System ("FPSO"), etc.[45] These platforms can involve investments on the order of $1 billion.[46]

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[42] Mark J. Kaiser, "A Review of Exploration, Development, and Production Cost Offshore Newfoundland", January 3, 2021; *see also* Coastal Review, "An Offshore Timeline," June 10, 2015, pp. 2-3, https://coastalreview.org/2015/06/an-offshore-timeline/.

[43] Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 9.

[44] Wood Mackenzie, "Shenandoah (WR 52) Asset Report," April 11, 2017, pp. 11–12 (APC-00095798).

[45] NOIA, "The Basics of Offshore Oil & Gas," pp. 3-4.

[46] Coastal Review, "An Offshore Timeline," June 10, 2015, p. 2, https://coastalreview.org/2015/06/an-offshore-timeline/.

57. The most significant costs of drilling - after incurring lease acquisition costs, shooting high-resolution 3D seismic, and performing in-house geological and geophysical work - is the day-rate of the specialized dynamically positioned drillships that are capable of drilling deep wells (>20,000 feet) in deep water (>5,000 feet). Given the cyclical nature of the exploration and production business, these day-rates can vary significantly, as seen in Figure 4 below.[47] Financing for most new-builds is secured by full-payout contracts for investment-grade rated and financially secure counterparties, which includes companies such as Anadarko, ExxonMobil, BP, Shell, and Total. Day-rates for sixth-generation high-spec floaters in 2013 reached as high as $678,000.[48] In the 2020 COVID trough, day-rates for sixth- and seventh-generation floaters fell to as low as $155,000.[49]

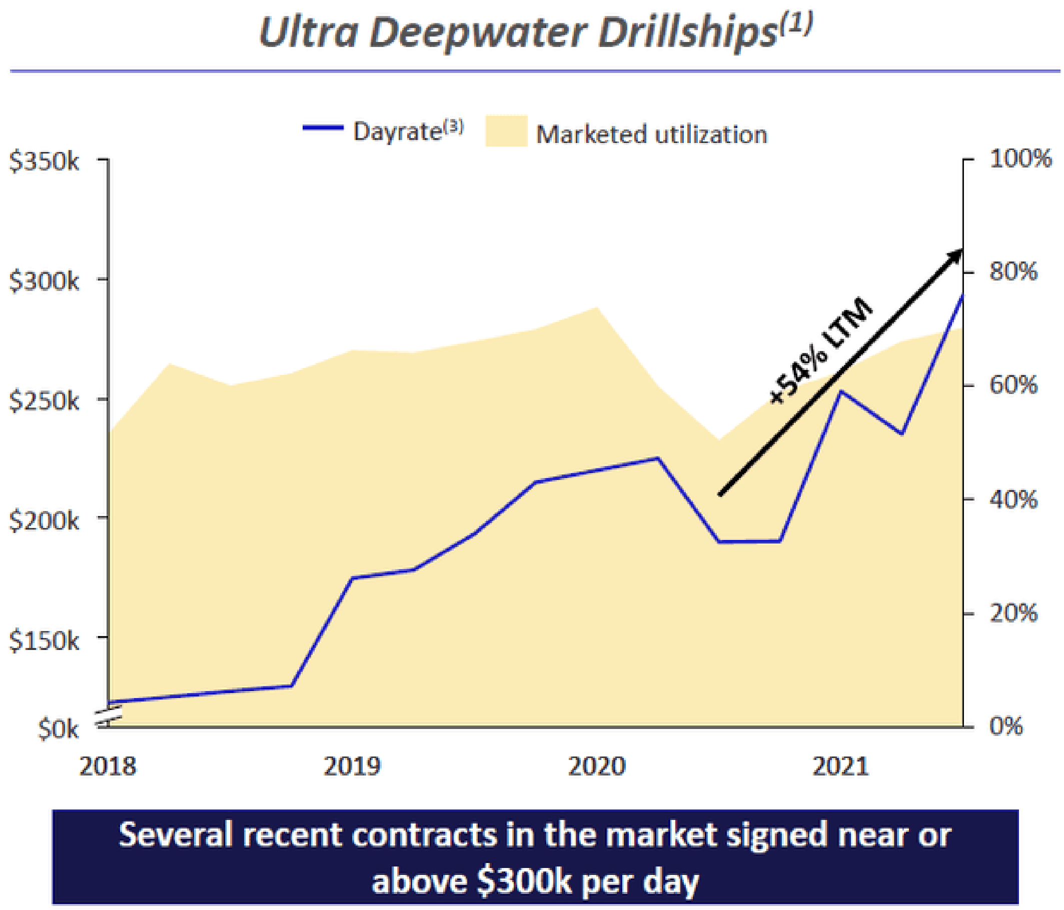
58. Figure 4 shows the volatility in high-spec day-rates over the period from September 2019-July 2022.

[47] Noble Corp and Maersk Drilling, “Noble Corporation and Maersk Drilling Announce Agreement to Combine,” November 10, 2021, p. 17.

[48] TransOcean, “Quarterly Fleet Status Report,” October 16, 2013, p. 2.

[49] TransOcean, “Quarterly Fleet Status Report,” July 15, 2020, p. 2.

Figure 4. Ultra Deepwater Drillship Dayrate and Marketed Utilization[50]



4.1.3. Investors understand that oil and gas companies must invest a significant amount of time to understand and appraise an oil discovery.

59. It is not unusual for a timeline from lease of a field to production to vary from four to ten years. This can be due to factors such as "the water depth at the lease location, the drilling

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[50] Noble Corp and Maersk Drilling, "Noble Corporation and Maersk Drilling Announce Agreement to Combine", November 10, 2021, p. 17.

depth needed to reach the target reservoir, the distance from shore and from infrastructure, the geological characteristics of the reservoir and complexity of production facilities design."[51]

60. The general timeline for exploration and production can include:

a. Six months to a year for application and approval of a lease of a target field.

b. One year for preliminary geological investigation and identification of areas of interest for additional seismic data acquisition.

c. One year to two years to acquire and to process seismic data and identify drillable prospects.

d. One year or more to contract and schedule a drilling rig.

e. Six to 10 months for drilling and completion of an exploratory well.

f. Six months to a year for follow-up evaluation of drilling results, which can include drilling a sidetrack well. Multiple exploration/appraisal wells may be needed, which further increases the time needed for evaluation of the project.

g. Another two to three years for additional delineation drilling, and formulation of a plan for reservoir development if the results of exploratory and appraisal wells conclude with a commercially viable finding and lead to an investment decision. During this time, the company works on pre-permit studies, permitting and design and procurement for production facilities, including surface and subsurface equipment and systems.

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[51] Coastal Review, "An Offshore Timeline," June 10, 2015, p. 2, https://coastalreview.org/2015/06/an-offshore-timeline/.

h. One year or more for facilities installation.

i. One to two additional years for development drilling. During this period, the company also works on design, permitting, engineering, procurement and installation of a pipeline or offshore mooring system to bring the production to market.[52]

61. Exploration projects may take even longer and even after many years may not be sanctioned. For example, in the case of Mozambique, Anadarko announced on February 18, 2010, that the Windjammer exploration well in the frontier Rovuma Basin offshore of Mozambique had reached an intermediate casing point and encountered more than 480 net feet of natural gas pay in high-quality reservoir sands, with a gross column of more than 1,200 feet.[53] Over nine years later, on June 18, 2019, Anadarko and its co-venturers announced a FID on the Area 1 Mozambique LNG project.[54] Later that year, in September 2019, Total announced the closing of the acquisition of Anadarko's 26.5% operated interest in the Mozambique project, which is expected to come into production by 2024, 14 years after the exploration well encountered natural gas pay.[55]

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[52] *Id.*

[53] Offshore, "Anadarko succeeds with Windjammer offshore Mozambique," February 18, 2010, https://www.offshore-mag.com/drilling-completion/article/16796105/anadarko-succeeds-with-windjammer-offshore-mozambique

[54] Anadarko Petroleum Corporation, "Anadarko Announces Mozambique LNG Final Investment Decision," June 18, 2019.

[55] Reuters, "Total aiming for two additional LNG trains in Mozambique LNG", November 5, 2019, p. 2, https://www.reuters.com/article/total-mozambique-lng/total-aiming-for-two-additional-lng-trains-in-mozambique-lng-idUSL8N27L69L.

4.1.4. Investors understand that oil and gas production, especially deepwater exploration, is risky and faces substantial uncertainties.

62. The oil and gas business is, by its nature, characterized by significant risks including environmental risks and exposure, regulatory risks, litigation risks and the technical challenges of economically extracting hydrocarbons from deep and/or complex geologic formations. This is more pronounced for deepwater exploratory drilling, and even more so for drilling that targets deep sub-salt horizons where even advanced 3D seismic has significant limitations. There is significant uncertainty as to the likelihood of drilling success and the economics of full-scale development, the development timetable, and the ultimate project value, if any.

63. The oil and gas sector is capital-intensive; as such, it is highly dependent on access to both equity and debt capital markets and to financing from industry and other joint venture partners. Further, the oil and gas sector is, like most commodity businesses, exposed to significant market volatility in prices for oil, gas and natural gas liquids. Price volatility impacts not only current and future revenues but also underlying reserve recovery potential, as fields are produced to their economic limits, the point in time when operating expenses exceed revenues.

64. Long-term price forecasts also impact a decision to invest in a given project. Deepwater exploration is characterized by long development timelines from initial deployment of capital and initiation of revenues.

4.1.5. Investors understand that exploration in deepwater Gulf of Mexico presents additional challenges.

65. Although most offshore platforms in the Gulf of Mexico have been in shallow waters, deepwater exploration and production have played an increasingly important role in the oil and gas industry. One industry commentator observes:

> "Over the past two decades, comparatively, production from shallow waters of the [Gulf of Mexico] declined by 77% for crude oil and 92% for natural gas, while production from deep waters increased significantly over the same period, with oil production increasing by nearly 200%. In 2019, 91% of the crude oil and 70% of the natural gas produced in the [Gulf of Mexico] came from deep waters."[56]

66. Offshore oil and gas production is more challenging than land-based installations due to the remote and harsher environment, as offshore exploration and appraisals take place far under the ocean. Several hundred meters of the ocean water adds pressure, which increases the expense and time needed for oil or gas extraction.

67. As water depths increase, risks tend to increase. The probability of finding hydrocarbons in deepwater exploration in a reasonably mature area is in the range of 30% to 40%; the probability of finding hydrocarbon in sufficient quantity for a commercially viable production is even lower at around 10% to 20%.[57] In other words, the discovery of hydrocarbons does not necessarily mean that a company will proceed with development and production.

68. With offshore exploration and production, the risks associated with operational safety and environmental breaches also increase.[58] In case of a blowout or a major spill, offshore clean-ups and remediations require a significant amount of capital.

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[56] Ulziitushig Batbuyan, "Deepwater Plays Against Rising Risks: The U.S. Gulf of Mexico," March 18, 2021, https://www.sustainalytics.com/esg-research/resource/investors-esg-blog/deepwater-plays-against-rising-risks-the-u.s.-gulf-of-mexico.

[57] Rafael Sandrea & Peter Stark, "Deepwater Oil Exploration in the Gulf of Mexico," July 2020, p. 1.

[58] Ulziitushig Batbuyan, "Deepwater Plays Against Rising Risks: The U.S. Gulf of Mexico," March 18, 2021, https://www.sustainalytics.com/esg-research/resource/investors-esg-blog/deepwater-plays-against-rising-risks-the-u.s.-gulf-of-mexico.

69. The deepwater Gulf of Mexico is a geologically complex environment with multiple subsurface faults that can limit the recovery of reserves. In particular, the Lower Tertiary sands, where Shenandoah is located, were first developed in early 2000s and represent one of the most expensive to drill because of its depth and complexity.[59] A McKinsey & Company study found that exploration activities in the deepwater Gulf of Mexico for the period from 2008 to 2017 had the lowest probability of discovery compared to developments at other regions.[60] McKinsey further noted that although exploration of Lower Tertiary (i.e., Paleogene) led to large size discoveries, most of the discoveries were not developed as of mid-2018 as a result of the complexity of the reservoir and the uncertainty of the economics.[61]

70. In a June 26, 2013 release, Deutsche Bank Securities outlined many of the challenges of the deepwater drilling in the Gulf of Mexico Lower Tertiary, which includes Shenandoah, noting that "[c]ommercial development of the Wilcox remains difficult with discoveries in water depths over 10,000ft to the sea floor and high bottom hole pressures (20,000+ PSI) and temperatures (200+ Fahrenheit)."[62] They added that development in the Gulf of Mexico Lower Tertiary had been "slow to date, as the industry has wrestled with the technical and economic challenges of developing a relatively lower quality reservoir . . . at temperature/pressure regimes at the limit of industry capabilities."[63] Deutsche Bank then

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[59] The Way Ahead, "Emerging Plays Boost Economic Attractiveness of Deepwater Gulf of Mexico," January 14, 2013, jpt.spe.org/twa/emerging-plays-boost-economic-attractiveness-deepwater-gulf-mexico.

[60] Kassia Yanosek & Matt Rogers, McKinsey & Company, "Unlocking future growth for deepwater in the Gulf of Mexico," July 13, 2018, https://www.mckinsey.com/industries/oil-and-gas/our-insights/unlocking-future-growth-for-deepwater-in-the-gulf-of-mexico.

[61] *Id.*

[62] Deutsche Bank Securities, "Get Onboard with the Inboard: Rise of the Lower Tertiary 2.0," June 26, 2013, p. 4 (DEUTSCHE0005118).

[63] *Id.* p. 5.

listed the "primary development challenges" facing the region, including difficulties with "[s]ubsalt imaging," resulting from the "significant salt canopy" that "impact[s] reservoir imaging and seismic quality," as well as "[h]igh pressure riser systems," which would "push the limits of technical capabilities for the industry."[64] Deutsche Bank continued, "Both Shenandoah and North Platte are major discoveries by any measure even though there is considerable uncertainty around development options for both at their early stages due to remote locations, extreme well and water depths, and few analogue fields in the Lower Tertiary Play. However, the large quantity of pay encountered via the latest Shenandoah appraisal well (1 ,000 feet), indicates huge potential for development."[65]

4.1.6. Investors understand that the terms "dry hole" and "wet well" can refer to a well that did not encounter hydrocarbons, but the decision to record a dry hole expense is based on company-level accounting policy.

71. During the exploration and appraisal process, it is not uncommon for a company to drill a well that does not encounter hydrocarbons. Sometimes, but not always, these wells are referred to as "dry holes" or "wet wells," which colloquially connote a lack of hydrocarbons. More specifically, a "wet well" is generally understood to mean that the company encountered water; while there is lack of hydrocarbons, there is a possibility of encountering hydrocarbons via a sidetrack, or the well may have other utility. A dry hole is generally understood to have no future utility, although it can still provide useful data about a prospect.

72. Investors also understand that after an exploration company incurs costs in connection with an appraisal well, it must determine whether to suspend or expense well costs. In particular, a company may charge the costs of a well to their "dry hole" expense account when

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[64] *Id.*

[65] *Id.* p. 9.

appropriate under their interpretation of applicable accounting standards. What constitutes a "dry hole expense" for accounting purposes is typically defined and disclosed by the exploration company in its SEC filings. Investors understand that exploration companies involved in a joint venture, such as the Shenandoah Partners, make independent accounting determinations based on their own interpretation of well results, applicable accounting standards, and individual accounting policies and, accordingly, may reach different determinations regarding whether and when it is appropriate to write off well costs as a dry hole expense.

4.1.7. Investors understand that deepwater exploration will result in dry holes and millions of dollars in dry hole expenses every year.

73. Investors understand that exploratory drilling in general involves a substantial risk of dry holes or failure to find commercial quantities of hydrocarbons.[66] Investors understand that exploration companies often drill holes that do not encounter commercially productive quantities of hydrocarbons, particularly in deep sea, sub-salt areas like the Gulf of Mexico.

74. Investors nonetheless understand that "dry holes" can provide important information. As Daniels said during a March 13, 2012 Investor Conference: "We're also learning from every well that we drill out here, and you'll see this post-appraisal loop as we go on through. So when we make a capital investment, that's not just to say, oh, it's a dry hole, let's forget it and move on. It's to say, we invested our shareholders' money to learn something about this area that could lead us either to success here or to success on the next opportunity. So we constantly are learning. Everything we do based on science and economics. Economics

[66] *See, e.g.*, Anadarko Petroleum Corporation, 2014 10-K, February 20, 2015, p. 42.

may not be science, but we marry the two. But the science goes into the identification of the opportunities and the evaluation of the risk/reward profile."[67]

75. Investors understand that oil exploration companies like Anadarko will expense millions of dollars in dry hole costs each year. Each year during the Class Period, Anadarko had dry hole expenses totaling hundreds of millions of dollars and took hundreds of millions of dollars in impairments on unproved proprieties.[68] Investors understand that dry hole expenses and impairments are a necessary part of deepwater exploration drilling.

4.1.8. Investors understand that many exploration projects may not result in a final investment decision.

76. In making a final investment decision ("FID"), i.e., a determination whether to convert the field to production, oil companies consider multiple variables, including the amount of potential resources predicted from the data gathered from exploratory wells, level of commodity pricing, cost of development including oil field services cost (which include costs associated with drillers, wireline, pipe/mud suppliers), competing demands for company capital resources, etc. Until the FID is made, there can be no certainty that the project will go forward. Given the long and complicated process from discovery to production, initial exploratory success does not ensure that development is justified.

77. Many exploratory wells that discover hydrocarbons, even those followed by multiple appraisal wells that similarly discover hydrocarbons, do not justify the significant subsequent commitments needed to monetize resources.

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[67] Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012, p. 39.

[68] Anadarko Petroleum Corporation, FY 2016 10-K, February 17, 2017, p. 63.

78. Oil and gas exploration companies and their investors do not focus narrowly on the size of the potential resources without also considering the cost of the development. Significant resources combined with high development costs and an extended timeframe to extraction could still result in a rational decision not to proceed—or at least postpone—development.

79. Price volatility impacts not only current & future revenues but underlying reserve recovery potential as fields are produced to their economic limits, the point in time when operating expenses exceed revenues. Thus, in periods of declining oil prices the volume of economically recoverable reserves declines. Long-term price forecasts also impact final investment decisions on the infrastructure needed to monetize reserves.

80. As Deutsche Bank commented in January 2014:

> "The success of the shift to unconventional oil in the US is the key contributor to the fear surrounding the sustainability of commodity price. Non-OPEC supply growth has supplanted the market's focus on demand growth. For the US E&Ps the situation is even more acute as light oil supply growth is contributing to volatility in regional pricing. The level of complexity is high, with an increasing importance of incremental infrastructure adds, regional pricing benchmarks (reduced relevance of WTI as a benchmark), and downstream demand trends. The barriers to entry for non-energy focused investors are rising, an opportunity for some, but not good for fund flows into the sector, in our view."[69]

81. Similarly, in January 2015, immediately before the start of the Class Period, Deutsche Bank noted:

> "E&P managements are confronted with one key decision point - to develop (drill ahead) or suspend activity (drop rigs). To date, the industry has acted rationally to lower commodity price (cash flows) reducing lower productivity capital (exploration, marginal activity) and high grading the resource base.

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[69] Deutsche Bank Securities, "Climbing the Wall of Worry. Not Just Yet," January 6, 2014, p. 2 (DEUTSCHE0005704).

> Without a drastic change in drilling costs (likely faster than the service industry will or can concede) economics at $50/bbl WTI will be challenged in all but the very best areas of major US oil plays. High grading is a natural outcome of rationing capital, the downside of which will be the consumption of highly economic projects at a cyclical low in commodity price (and returns). As a result, E&P capex guidance will be a moving target for some time with a justified reticence by producers to guide with full clarity on a trough commodity price without the benefit of trough service cost assumptions."[70]

82. As described in further detail in the following sections, the oil industry faced significant hurdles during the Class Period. After the close of the Class Period, analyst commentary remarked on the challenging state of the oil and gas industry:

> "Energy stocks have been the worst performing sector YTD as both prompt and longer-term oil prices have declined on concerns about robust US shale growth, and equities have priced in lower longer-term oil price outlooks. Coming into 2017, we estimate E&P valuations reflected a recovery in WTI oil prices to $65/Bbl, well above the back of the futures curve at that time of $56/Bbl. In other words, the stocks were expecting a sharp oil price rally that did not materialize. By the end of 1Q, we estimate the sector was reflecting a much lower normalized oil price of $55/Bbl, still above the back end of the futures curve of $51/Bbl at the end of March with the weakness in crude oil driven by concerns that E&Ps robust longer term oil growth outlooks would inhibit any material drawdown in high oil inventories. Despite seasonal declines in US crude and product inventories building less than historical levels during 2Q combined with OPEC extending its production cut agreement by 9 months through March 2018, oil prices continue to slide with the back end of the futures curve now at $49/Bbl and stocks discounting a recovery to $52/Bbl."[71]

> "Deepwater markets are in the midst of a very long transition This is the most challenging environment the deepwater drilling industry has ever faced. Over the past three years, the industry has endured an unusually severe decline in rig fixtures, an unprecedented wave of early contract terminations, and a sizeable withdrawal of customers. The supply demand imbalance is unlike

[70] Deutsche Bank Securities, "2015 Capex - A Moving Target," January 6, 2015, p. 1 (DEUTSCHE0007429).

[71] UBS, "Oil & Gas Exploration and Production Lowering Near and Medium Term Oil Price Forecasts; Risk/Reward Favors SMID-Caps", June 7, 2017, pp. 4-5 (UBS00070725).

> anything the industry has ever experienced. Balance sheets are being tested, pricing tactics are fierce, and rigs are being scrapped at a record pace. After all is said and done, the earnings power of the industry has diminished severely and companies are seeking ways to reestablish themselves in the value chain."[72]

83. Investors understand that the commodity price environment is vital for determining whether a company would make a FID.[73]

4.2. Anadarko

4.2.1. Investors understood that as one of the largest independent exploration & production companies, Anadarko had a large and diversified asset base.

84. During the Class Period, Anadarko was one of the largest operators in the deepwater Gulf of Mexico with a significant leasehold base and well recognized technical expertise.

85. Commentary from industry analysts show that Anadarko had a strong technical team with recognized expertise and a track record of success:

a. Anadarko is "particularly skilled at exploration, with significant success over time. They have been able to sell a lot of discoveries as well. . . . [T]here remains significant value due to their exploration skillset."[74]

b. "The Company has one of the best exploration track record[s] in global energy landscape with frontier exploration successes in West Africa (Ghana, Ivory Coast), East Africa (Mozambique) and Gulf of Mexico. The Deepwater exposure also enables the Company to pursue tie back strategy to monetize small stranded discoveries. Tie back

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[72] Deutsche Bank Securities, "Not Business as Usual," October 9, 2017, p. 36 (DEUTSCHE0010209).

[73] See Declaration of N. Barrett, Janus Henderson ¶ 7.

[74] FMR Research, "CFO in-house. Under appreciated potential. Top Pick. '1'," June 3, 2016, p. 30 (FIAM-ANAD-000002_0030).

strategy is most applicable in GoM that allows management to leverage existing infrastructure build out."[75]

c. "Long Cycle assets: These include Deepwater resource assets in GoM and in Africa. Anadarko has been one of the very few companies which has had exploration success. This success has enabled the Company to build a tier 1 deepwater global footprint. . . . Managers are focused on returns and profitable growth. The Company during the past decade has been successful in monetizing long dated discoveries and pulled forward the value of these discoveries."[76]

d. "Best in class portfolio management with a balanced portfolio of both onshore unconventional oil and gas assets, GOM, and International projects. Ability to start returning cash to shareholders though increased dividends and/or share repurchases as cash flows outpace spending over the next few years. Ownership of mineral rights in Rockies significantly elevates drilling returns. Top tier GOM deepwater success rate above 70% in 2013."[77]

86. Anadarko's assets were not characterized by significant/excessive risk concentration in any individual fields/basins/regions. Figure 5 below shows that as of February 2017, Anadarko had development and production activities throughout the world.

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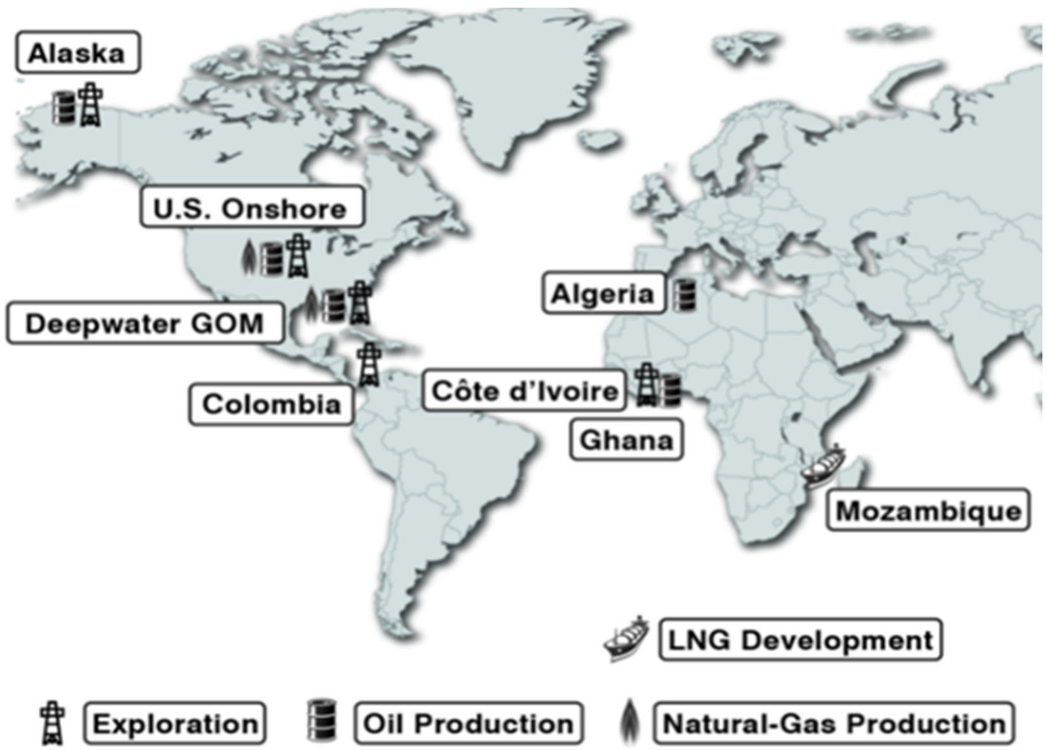
[75] FMR Research, "Management is taking right steps to unlock shareholder value. Quality franchise trading at significant discount to intrinsic value. Initiate with a buy '2' rating," July 25, 2016, p. 32 (FIAM-ANAD-000002).

[76] *Id.* p. 34.

[77] Cowen and Company, "Anadarko Petroleum Corporation Overhang Lifted; Tronox Settlement A Positive," April 4, 2014, p. 2 (ANADARKO_00000043).

Figure 5. Anadarko's Global Exploration and Production Activities as of February 17, 2017[78]



87. In its 2016 10-K, dated February 17, 2017, Anadarko described its operations as follows:

> "***Overview*** Anadarko's U.S. operations include oil and natural-gas exploration and production in the U.S. onshore, deepwater Gulf of Mexico, and Alaska. The Company's U.S. operations accounted for 89% of sales volumes and 80% of sales revenues during 2016 and 90% of proved reserves at year-end 2016."[79]

> "***U.S. Onshore.*** Anadarko's U.S. onshore properties include oil and natural-gas plays located in Colorado, Texas, Utah, Wyoming, Pennsylvania, Louisiana, and Kansas, where the Company operates approximately 12,700 wells and owns interests in approximately 3,500 nonoperated wells."[80]

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[78] Anadarko Petroleum Corporation, 2016 10-K, February 17, 2017, p. 6.

[79] *Id.* p. 7.

[80] *Id.*

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> ***"Gulf of Mexico*** Including the GOM Acquisition described below, as of December 31, 2016, Anadarko owns an average working interest of 70% in 327 blocks in the Gulf of Mexico, operates 10 active floating platforms, and holds interests in 39 fields. The Company continued an active deepwater development and appraisal program in the Gulf of Mexico during 2016 as it continues to take advantage of existing infrastructure to cost-effectively develop known resources."[81]
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> ***
>
> ***"[International] Overview*** Anadarko's international operations include oil, natural-gas, and NGLs production and development in Algeria and Ghana, along with activities in Mozambique, where the Company continues to make progress towards a final investment decision on an LNG development. The Company also has exploration acreage in Colombia, Côte d'Ivoire, Mozambique, and other countries. International locations accounted for 11% of Anadarko's sales volumes and 20% of sales revenues during 2016 and 10% of proved reserves at yearend 2016. In 2017, the Company expects to focus its exploration and appraisal activity in Côte d'Ivoire and Colombia."[82]

88. Figure 6 below shows Anadarko's U.S. onshore assets, which reflected the largest driver of its revenue during the Class Period, as of February 17, 2017.

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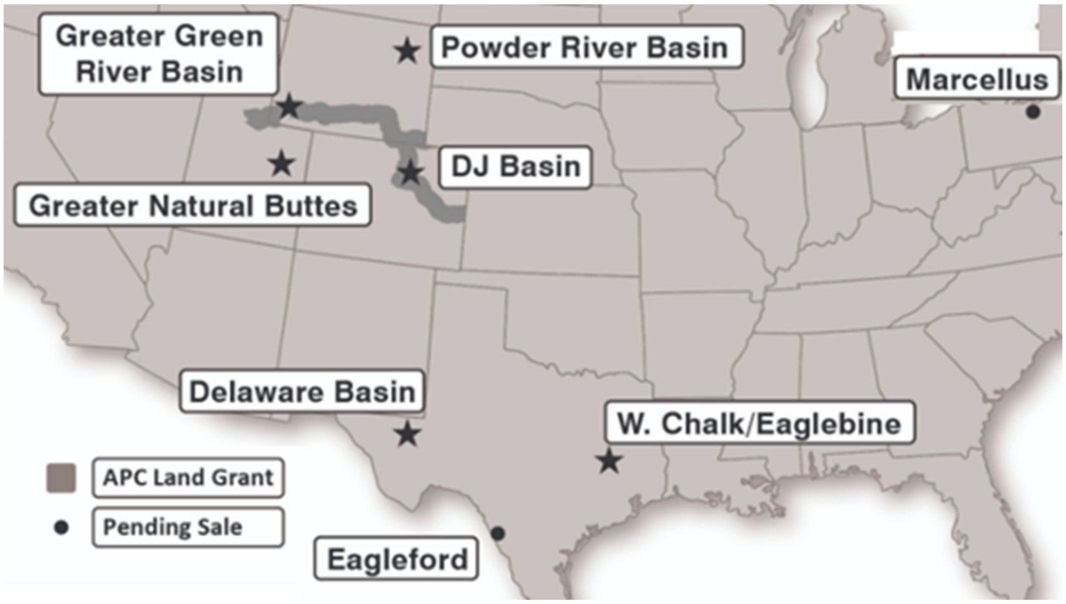
[81] *Id.* p. 9.

[82] *Id.* p. 12.

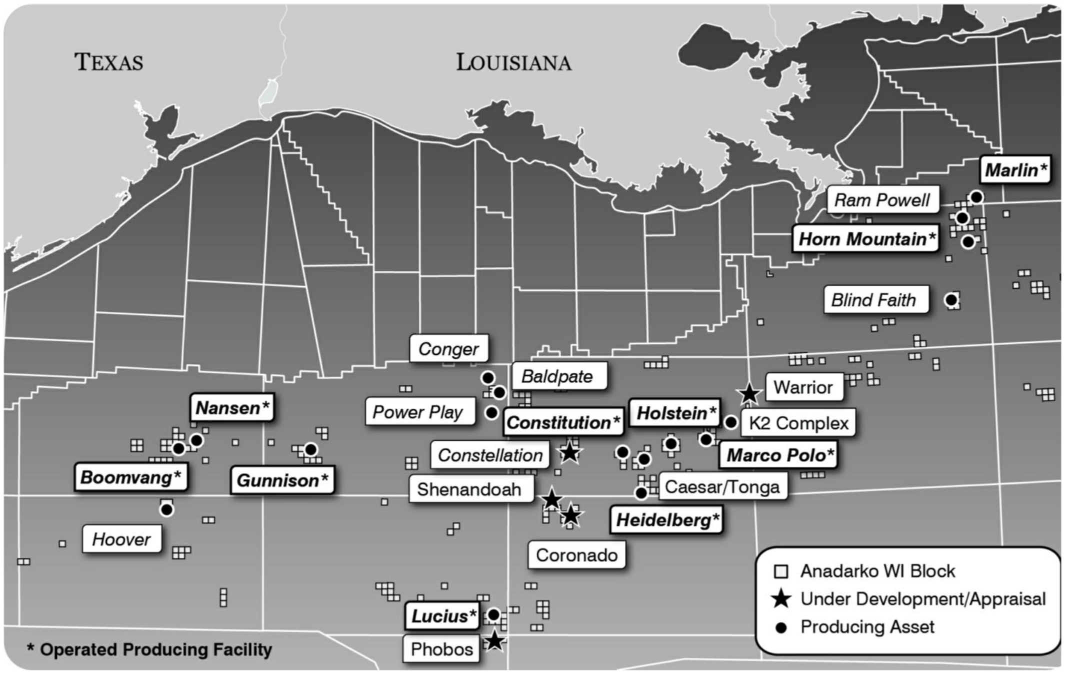
Figure 6. Anadarko's U.S. Onshore Exploration and Production Activities as of February 17, 2017[83]



89. Shenandoah was one of Anadarko's assets in the GoM, as shown in Figure 7 below.

[83] *Id.* p. 7.

Figure 7. Anadarko's GoM Offshore Exploration and Production Activities as of February 17, 2017[84]



90. Anadarko was among the largest independent producers in the deepwater Gulf of Mexico with an extensive track record and broadly recognized technical expertise in the area.[85] Its Gulf of Mexico assets were spread over multiple fields and included significant working interest partners, offering additional technical expertise and risk-mitigation. Investors understood that investments in Shenandoah would be impacted by developments in the rest of the Gulf of Mexico, as they would be able to leverage existing infrastructure and take advantage of tiebacks.

91. Shenandoah was a potentially important asset but not a key driver in Anadarko equity valuation. Shenandoah was one of many higher-risk and higher-potential Gulf of Mexico

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[84] *Id.* p. 9.

[85] See the discussion on Anadarko's Business above.

prospects and represented a small portion of Anadarko's asset base. For example, in its 2014 10K, which was released on the first day of the Class Period, Anadarko described its appraisal activities in the Gulf of Mexico, which included the Coronado and Yucatan discoveries:

> "Appraisal: Shenandoah Basin The Company spud the Shenandoah-3 well, its second appraisal well at the Shenandoah discovery, in the second quarter of 2014. The well finished drilling at the end of 2014 and found approximately 50% (1,470 feet) more of the same reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered over 1,000 feet of net oil pay in excellent quality Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, excellent reservoir qualities, and down-dip thickening. The well also enabled the projection of oil-water contacts based on pressure data and reduced the uncertainty of the resource range. Planning is underway for the next appraisal well, which the Company expects to spud in the second quarter of 2015.
>
> An appraisal well at the Coronado discovery (35% working interest) reached total depth during the second quarter of 2014 and did not find the Lower Miocene objective and was plugged and abandoned.
>
> During the third quarter of 2014, the first appraisal well of the Yucatan discovery (25% working interest) was drilled down-dip of the original discovery, and found approximately 57 gross feet of pay in Lower Tertiary oil-bearing sands. The Yucatan discovery is located approximately three miles south of the Shenandoah discovery. "[86]

92. In early 2016, analysts estimated opportunities of approximately $5-15 billion from Anadarko's Gulf of Mexico assets, exclusive of Shenandoah, because of subsea tiebacks, a

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[86] Anadarko Petroleum Corporation, 2014 10-K, February 20, 2015, p. 9.

process of connecting new discoveries to existing production.[87] Analysts also noted other appraisal activities in the Gulf of Mexico:

a. BMO Capital Markets: "Anadarko expects to spend $2.8 billion (excluding WES) in 2016, which is a 50% reduction from 2015. While we'll have to wait until March 1 for details, shorter-cycle capex is expected to be reduced as a percentage of the total budget. Based on the analysis above, we estimate $1.3-1.4 billion will be spent on U.S. onshore activity, which represents a 60% Y/Y reduction. We expect the GOM to see the least reduction due to subsea tieback opportunities at Caesar/Tonga and four of the five deepwater rigs being focused here. Anadarko noted that these opportunities have a $5-15Boe F&D with returns that remains strong at current commodity prices. Also, Heidelberg and Shenandoah will continue to see activity. We expect international capex to be down 40% Y/Y, with minimal spending in Mozambique and a reduction in Ghana as TEN achieves first oil in 3Ql6."[88]

b. Barclays: "The company plans to allocate $400 million of its $700 million GOM budget to development and the remaining amount of the budget to exploration/appraisals. Total production is expected to decline 12% in the Gulf. APC has two tiebacks planned for both its K2 complex and its Caesar/Tonga asset, one tie-back planned for Lucius and potential tie-backs for Warrior and Phobos. Two appraisal wells will be drilled at Shenandoah and one at Phobos. One exploration well is planned at Warrior."[89]

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[87] See BMO Capital Markets, "Markets Playing in the 2016 Sandbox Ahead of March," February 3, 2016, p. 3 (APC-01327135); Barclays, "APC Provides Detail on 50% Capex Cut and Flat Expected Oil Volumes; 2016 Asset Monetization Plan Increased to $2-3 Billion," March 1, 2016, p. 2 (APC-01327279).

[88] BMO Capital Markets, "Markets Playing in the 2016 Sandbox Ahead of March," February 3, 2016, p. 3 (APC-01327135).

[89] Barclays, "APC Provides Detail on 50% Capex Cut and Flat Expected Oil Volumes; 2016 Asset Monetization Plan Increased to $2-3 Billion," March 1, 2016, p. 2 (APC-01327279).

93. Further in March 2017, Deutsche Bank explained the following activities in the Gulf of Mexico:

> "Planned development consists of 7 tiebacks (-2 rigs) and 1 platform rig well (Holstein) driving development spend of $960mm ($600mm drilling and $360mm in facilities/maintenance). Expects to maintain production (130 Mbo/d and 160 Mboe/d through 2019) and generate $1 Bn in FCF per year through 2021 at $55/$3 WTI/HH. Plans to drill 5-6 exploration and appraisal wells in 2017 with potential nearterm tiebacks (Calpurnia-1, Warrior-2, and Phobos-3) representing half while Shenandoah 6, Shenandoah-6 ST, and Coronado 3 will further advance appraisal efforts in the Shenandoah Basin. Shenandoah-6 ST is currently drilling."[90]

94. At various times throughout the Class Period, analysts estimated the value of Anadarko's interest in Shenandoah based on information available at the time. For example, in a research report dated July 29, 2015, UBS assigned a value of approximately $2.75/share to Shenandoah in its net asset value ("NAV") estimate of $118/share for Anadarko.[91] This estimated value of Shenandoah represented approximately 2.33% of the total value of Anadarko at the time.

95. Similarly, JP Morgan performed a valuation of Anadarko using a NAV approach in a report dated May 4, 2016. However, JP Morgan did not "give value for Shenandoah in [their] NAV given uncertainty around the project," stating that "[Anadarko] indicated there is some apparent faulting in the structure that wasn't encountered in the seismic. As a result, the

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[90] Deutsche Bank Securities, "Anadarko Petroleum Corp. Being Resource-Full Above All Else?," March 8, 2017, p. 3 (APC-01334146).

[91] UBS, "Strong 2Q EPS/CFPS Beat; Raising Estimates on Higher 2015 Oil Production Guidance," July 29, 2015, pp. 2, 11 (UBS00015972). Net asset value or NAV reflects the differences of a company's assets and liabilities. Analysts often apply a NAV approach to value exploration and production companies by assigning a value to individual assets and liabilities and then aggregate the components to derive a NAV value for the whole company.

company plans to drill more appraisal wells to make sure there is not additional compartmentalization across the field."[92]

96. Likewise, in a research report dated February 5, 2017, Goldman Sachs valued the Shenandoah project at around $0.50 to $0.75 per share, based on Goldman Sachs' internal reserve estimate of 775 million barrels of oil equivalent, a $9 billion development cost and a project breakeven oil price of $45-50/bbl. That compares to a NAV of $69 per share for Anadarko, and hence reflects approximately 1.1% of the total value of the company.[93]

97. I found at least 314 reports from 22 analysts, including UBS, JP Morgan and Goldman Sachs published 314 reports during the Class Period that applied a NAV approach to estimate the value of Anadarko.[94] Most of these reports did not provide a value for Shenandoah because they either assigned no value to Shenandoah or did not value Shenandoah separately from the other unproven assets. This suggests that Shenandoah was not a sufficiently significant or certain portion of Anadarko's asset base to merit separate valuation attention from these analysts. However, 8 analysts in 32 reports did provide a non-zero value for Shenandoah. Those values of Shenandoah represent 1.1 % to 3.7% of Anadarko's total NAV.[95] Figure 8 below charts the portion of Anadarko's valuation the eight analysts attributed to Shenandoah. These valuations further suggest that Shenandoah was viewed by analysts as only a small part of Anadarko's asset base. Importantly, the valuations also suggest that

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[92] JP Morgan, "Anadarko Petroleum More Positives Than Negatives, But a Few Chinks in the Armor," May 4, 2016, p. 1 (APC-01328858).

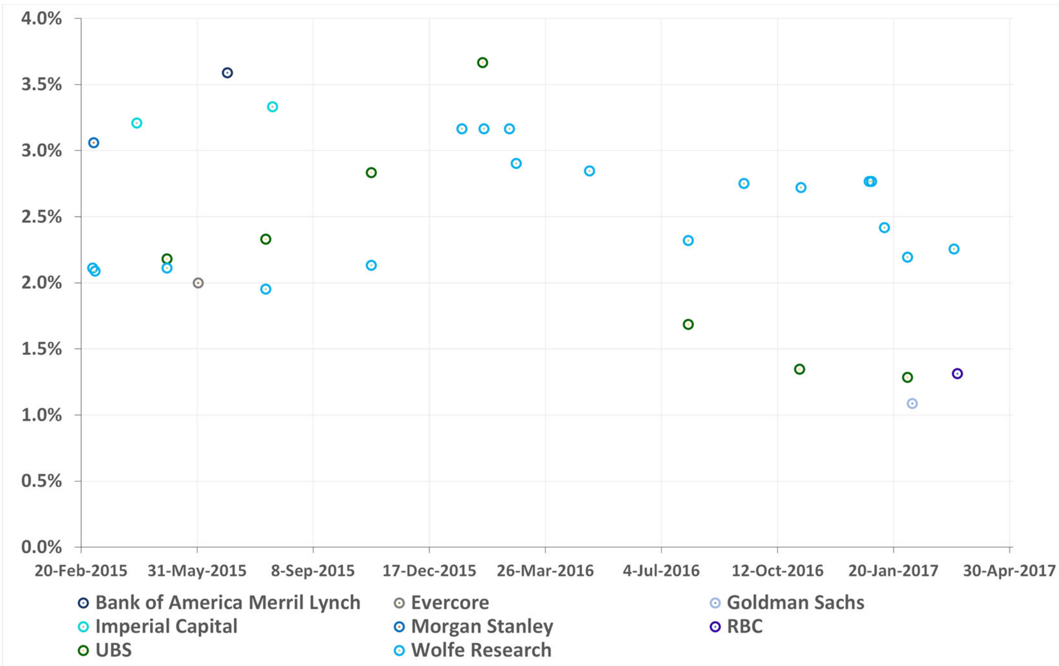
[93] Goldman Sachs, "Anadarko Petroleum Corp. (APC) Unappreciated GOM production profile to drive the next leg up; Buy", February 5, 2017, p. 14–15 (GS-002754).

[94] List of relevant Analyst Reports is included in Appendix B to my report.

[95] Sources are listed in Appendix B to my report.

analysts attributed an increasingly smaller value to Shenandoah as the appraisal prospect progressed.

Figure 8. Portion of Anadarko's Valuation Attributed to Shenandoah[96]



98. One of Plaintiffs' investment managers, Fidelity, did not assign any value to Shenandoah, and the ultimate write-off of Shenandoah did not affect Fidelity's valuation of Anadarko:

> "Shenandoah in the GOM was written off, as the most recent appraisal well didn't find oil, in part due to operational issues with drilling the well. This project was already going to be tough to get over the finish line, and with a smaller reservoir they've stepped away from it. Still own the blocks, but unlikely it will proceed at this point. Disappointing, but not too surprising - I was not assuming anything in my production forecast."[97]

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[96] Analyst reports by Bank of America Merrill Lynch, Evercore, Goldman Sachs, Imperial Capital, Morgan Stanley, RBC, UBS, and Wolfe Research from February 20, 2015 to May 2, 2017.

[97] FMR Research, "Operations good w/ strong outlook, val'n compelling but in sentiment purgatory," May 8, 2017, p. 42 (FIAM-ANAD-000002).

99. Another one of Plaintiffs' investment managers, Janus Henderson, noted that it invested in Anadarko based on its overall business, not any single oil field.[98]

4.2.2. Investors understood that Anadarko engaged in active portfolio management to drive value, and that this could include selling, rather than developing, exploration assets.

100. Long before the start of the Class Period, investors understood that Anadarko engaged in active portfolio management to maximize value for its shareholders. Anadarko repeatedly emphasized this message during investor conferences and earnings calls, often referring to asset sales as "monetizations."

101. For instance, during a March 2012 investor conference, Daniels described their "active" appraisal program:

> "All levels understanding exploration – not just the risk, which is key. You have to understand what the risks are, but you also have to balance that out against the rewards. And a lot of times, people think about exploration risk. Exploration means risk and reward, and we're trying to balance that. And there's a very, very good understanding not just at the senior level – all levels of the organization that that's the balance we're trying to optimize around so that we get the maximum reward for the least amount of risk.
>
> We're very future-focused. You're going to see an awful lot of attention to what's going to happen in 2012. Where we spend an awful lot of our time on is what are we going to be drilling in 2013 and 2014, and how do we bring those forward, and also how do we evaluate, as efficiently as possible, the discoveries we've made so that we can roll those into Chuck's world and that they can work their magic on the developments.
>
> And then driven towards that value realization, and you've seen examples of that, whether it's through monetizations, whether it's through [joint ventures ("JVs")], whether it's through exploration sell-downs. But we do that all the

[98] Declaration of N. Barrett, Janus Henderson ¶ 5.

> time, and we're driven towards making sure, when we create value by finding something, that then we realize the value for our shareholders.
>
> . . .
>
> The standardized risk assessment and consistent economic evaluation – another group that I have in the exploration team is called our Exploration Engineering Group. They're very key to how we evaluate our portfolio and the decisions that we make in that they're engineers that are embedded in the entire exploration organization, reporting up to a common structure. And what that allows is commonality of assessment, whether it's timing, cost, resources, deliverability, all of the things that go into a full economic assessment. And then you marry that with a risk assessment of the subsurface, which is based on the Rose methodology, which is embedded through the entire organization. It allows you to then be able to compare, as best you possibly can, a prospect in Brazil versus a prospect in Mozambique versus a prospect in the deepwater Gulf of Mexico and looking at that risk/reward profile and what does it mean for our shareholders at Anadarko."[99]

102. In May 2013, when asked about forthcoming monetizations, Walker emphasized that at Anadarko they were "very active managers of [their] portfolios."[100] Gwin added, "There's a variety of these types of things that we continue to work on. And we'll continue to try to fine-tune the portfolio of things that don't work quite as well for us, attractive assets but might fit better in somebody else's portfolio, and then we'll continue to focus our capital and attention on the things that are our highest points of opportunity."[101]

103. During a March 2014 investor conference, Walker continued on this, explaining two selloffs in the Gulf of Mexico that improved Anadarko's balance sheet:

> "Monetizations in our portfolio will continue. I mean that in the sense that we're always constantly like many of you who run money in the room looking to

[99] Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012, pp. 39-40.

[100] Anadarko Petroleum Corporation, Q1 2013 Earnings Call Transcript, May 7, 2013, p. 13.

[101] *Id.*

> improve our portfolio and not be static in the way in which we think about what is in our portfolio. This approach really allows us to accelerate what we think about with respect to the velocity of our portfolio; that change is really, really important, that accelerating the cash, whether it's a long cycle investment, short or something that we see as an investment that may or may not be something that we'll want to take to development really allows that acceleration, that velocity of that cash to come forward. A lot of that help is also reduced execution risk. And we're going to talk a little bit about that as well.
>
> If you think about Lucius and Heidelberg, two great examples where we had taken two great discoveries, put them into the development, and we sold down enough working interest to be able to have somebody else pay the D of the F&D, and be able to have a very attractive rate of return and a meaningful impact for the production and reserves for our own balance shee[t]. So we reduced the risk, improved our optionality associated with it and frankly in some ways it simplified our equity story."[102]

104. When asked about monetizations and how, "given the success of Shenandoah," Anadarko was "thinking about non-operated working interest in the Gulf of Mexico," Gwin declined to give out information on specific assets but emphasized that the "key" was that Anadarko "will make those decisions based upon continuing refinements in [its] model."[103] He added, "We'll continue to re-optimize the portfolio, and if there are places where, and maybe it's in a place like Shenandoah. But we've shown the ability to do it onshore in the U.S., and in the deepwater, and internationally. We've done it through carry structures fairly creatively, and we've been able to do it with just straight monetizations like we are with Pinedale/Jonah and in Mozambique. So I think the comment is one in general to say, we're not done managing this way, but a lot of it's going to matter about – Al talked about lots of things we

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[102] Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, p. 5.

[103] *Id.* p. 18.

can't predict today. As things evolve we're going to continue to try to position ourselves most efficiently, and then we'll take advantage of it in the market."[104]

105. Anadarko's message regarding its portfolio monetization was consistent: They were committed to exploring prospects but would determine whether to develop or sell those prospects depending both on the prospect and how it fit within its portfolio.

[104] *Id.* p. 19.

5. Publicly Disclosed Information Regarding Shenandoah

106. In this section, I review Plaintiffs' allegations with respect to Anadarko's Shenandoah disclosures as specified in the Amended Complaint. While I do not explicitly address all statements in the Amended Complaint, particularly where the allegedly misleading nature of the statement is unclear, I address each general category of statement. I analyze how investors understood the Shenandoah project given the totality of information in the market. Recognizing that markets assimilate information from all credible sources, I review Anadarko's statements, related disclosures made by the other Shenandoah Partners, as well as comments about these disclosures from equity research analysts, investment managers, and news outlets.

107. Based on this review, I find that Plaintiffs' allegations either reflect a misunderstanding of how investors understood these statements or ignore other information in the market. By the time of the alleged corrective disclosure, investors were aware of the difficulties that made sanctioning Shenandoah less attractive. The write-off thus did not result from risks and difficulties known to Anadarko that they had failed to disclose.

5.1. Anadarko's Pre-Class Period Statements about the Projected Value and Size of Shenandoah Project

5.1.1. Overview:

108. Plaintiffs assert that Anadarko made several statements prior to the start of the Class Period that inflated the value of Shenandoah. In this section, I analyze how investors interpreted these statements. I also analyze additional statements that Anadarko and the Shenandoah Partners made about the Shenandoah project around this time, as well as statements from market participants. This review is intended to assess what investors understood about the Shenandoah development prior to the start of the Class Period.

5.1.2. Plaintiffs' Allegations:

109. I understand Plaintiffs to be pursuing an "inflation-maintenance theory."[105] Plaintiffs cite four pre-Class Period statements Defendants made over the course of five years—February 2009 through March 2014—that they contend contained "inflated numbers" about the size of the Shenandoah resource that "duped" the market.[106] Plaintiffs allege that "Defendants [dug] [t]hemselves a [h]ole in [h]ailing Shenandoah as a [m]ulti-[b]illion [d]ollar [o]pportunity,"[107] and that "the data collected from the Shenandoah wells proved that Defendants' public characterization of Shenandoah as a '~$2 - $4 Billion Net Opportunity' was vastly overstated and required a significant downward adjustment."[108] Plaintiffs further allege that "Defendants never corrected their projected value and size of Shenandoah project during the Class Period."[109]

110. In support of their theory, Plaintiffs first cite to Defendants' February 2009 announcement of the Shen-1 discovery well, which stated, "The Shenandoah discovery well, located in Walker Ridge block 52, encountered net oil pay approaching 300 feet in the Wilcox formation."[110] The press release quoted Daniels as saying, "This has been a remarkable week, with back-to-back deepwater discoveries in the Gulf of Mexico . . .. Initial data indicates the Shenandoah discovery has reservoir properties that appear to be of much

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[105] Reply in Support of Motion to Certify Class, p. 3 (citing Amended Complaint ¶ 151).

[106] Amended Complaint pp. 10–12. Plaintiffs also take issue with two pre-Class Period statements about Shen-3. As these do not appear to go to their "inflation-maintenance theory," they are discussed *infra* Section 5.2.3.

[107] *Id.* p. 10.

[108] *Id.* ¶ 36.

[109] *Id.* ¶ 36.

[110] Anadarko Petroleum Corporation, "Anadarko announces Another Deepwater Gulf of Mexico Discovery," February 4, 2009, p. 1 (APC-01335462).

higher quality than [the] industry has seen previously in the emerging Lower-Tertiary play. The success of this well and our recent Heidelberg discovery further confirms the value of Anadarko's extensive acreage position and our capability in exploring proven and emerging deepwater basins worldwide."[111]

111. Second, Plaintiffs cite to a March 13, 2012 investor relations conference call, alleging that "Anadarko boasted of an exploration goal of delivering 'over 800' million barrels of oil equivalents ('MMBOE')."[112] Plaintiffs contend that "Shenandoah alone constituted approximately one-third of the projected resources to meet that goal, which at that time would have made it the third largest resource ever found in the Gulf of Mexico."[113] The slide at issue is:

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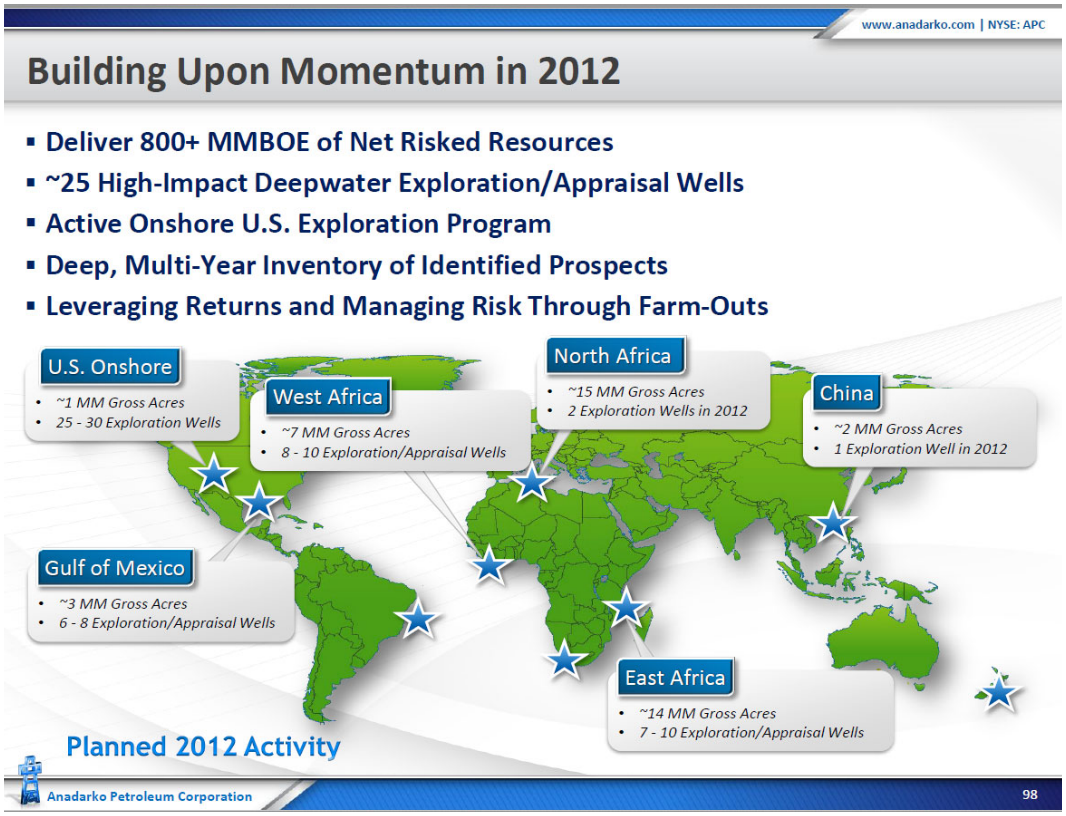
[111] *Id.*

[112] Amended Complaint ¶ 31.

[113] *Id.*

Figure 9. Reproduced Slide: Building Upon Momentum in 2012[114]



112. Third, Plaintiffs identify a statement from Daniels in an Anadarko press release dated March 19, 2013, announcing the outcome of Shen-2. Plaintiffs contend that Daniels "touted favorable results"[115] of Shen-2:

> "The successful Shenandoah-2 well marks one of the Anadarko's largest oil discoveries in the Gulf of Mexico, with more than 1,000 net feet of oil pay and reservoir rock and fluid properties of much higher quality than previously encountered by [the] industry in Lower Tertiary discoveries . . . With ownership in the successful Shenandoah wells, the adjacent Yucatan prospect, and the very encouraging results from the nearby Coronado well, Anadarko is strategically

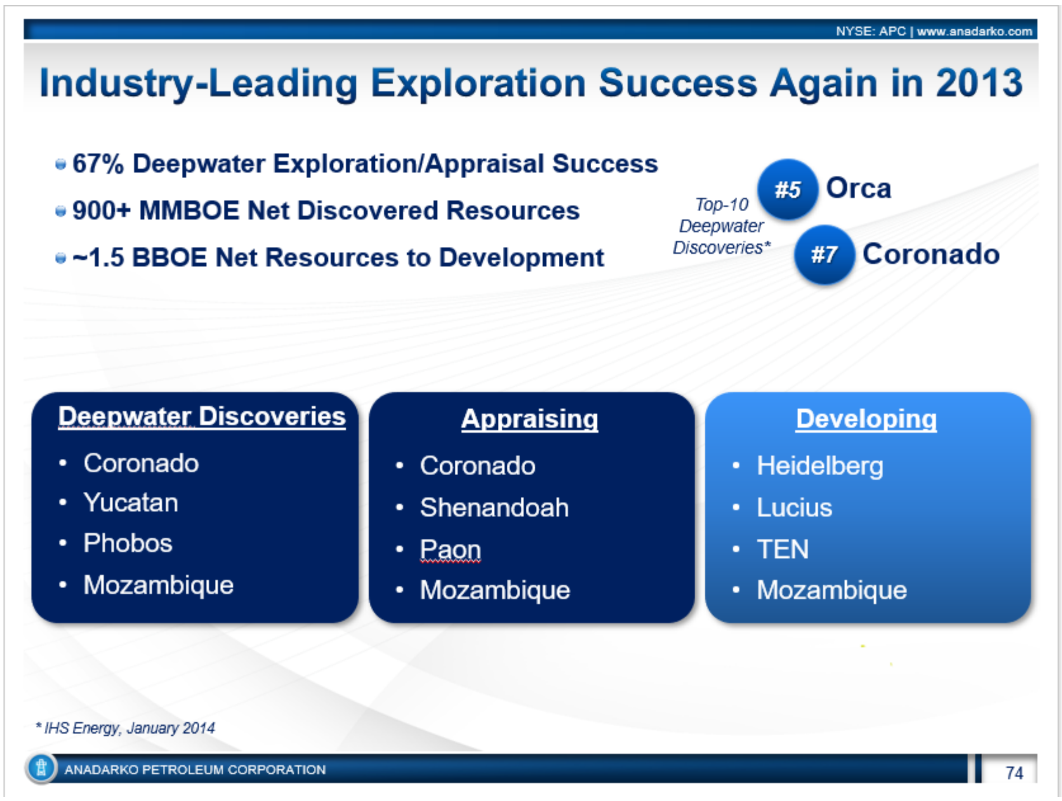
[114] Anadarko Petroleum Corporation, Investor Conference Presentation, March 13, 2012, p. 98.

[115] Amended Complaint ¶ 32.

positioned in the Shenandoah Basin, which has the potential to become one of the most prolific new areas in the deepwater Gulf of Mexico."[116]

113. Fourth, Plaintiffs identify statements in an Anadarko investor presentation dated March 4, 2014, which includes a slide stating Anadarko had "900+ MMBOE Net Discovered Resource," "a third" of which the Amended Complaint claims "was attributable to Shenandoah," and a slide that described the Shenandoah basin as a "~$2 - $4 Billion Net Opportunity."[117] The slides at issue are:

Figure 10. Reproduced Slide: Industry-Leading Exploration Success Again in 2013[118]

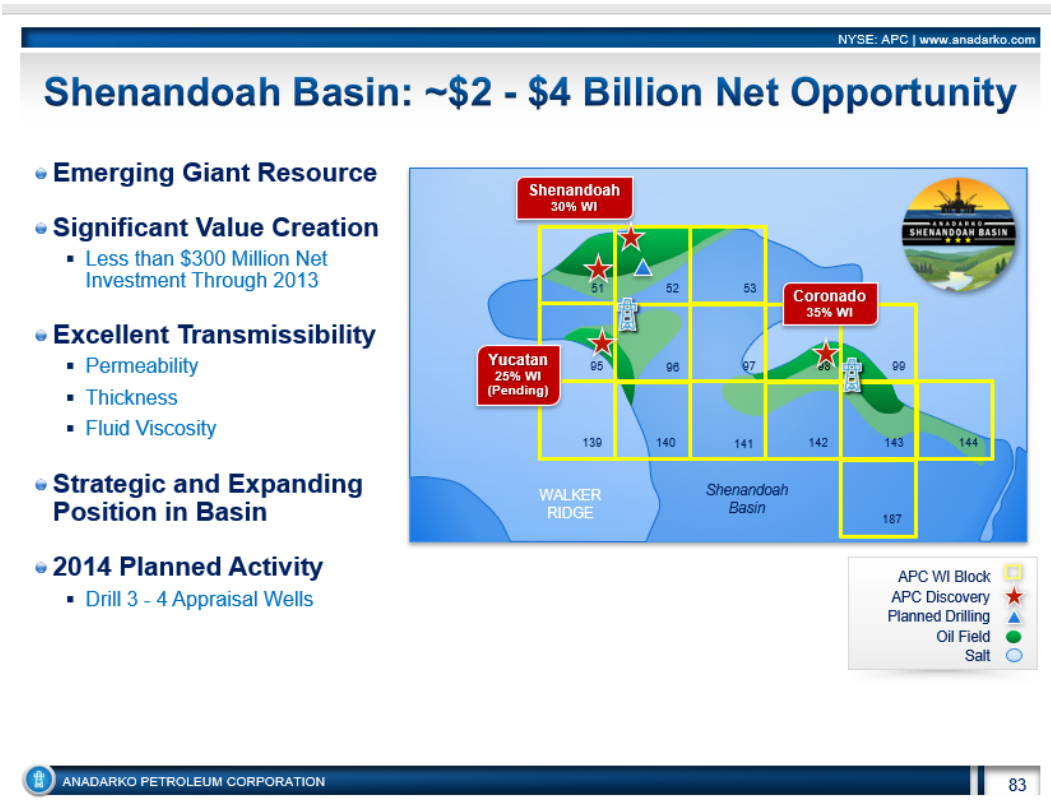


[116] *Id.* ¶ 32.

[117] *Id.*¶ 34.

[118] Anadarko Petroleum Corporation, Investor Conference Slides, March 4, 2014, p. 74.

Figure 11. Reproduced Slide: Shenandoah Basin: ~$2 - 4 Billion Net Opportunity[119]



5.1.3. Summary of Conclusions

114. **Conclusion A: Investors did not view Anadarko's February 2009 announcement about the Shenandoah discovery well as an estimate of the projected value and size of Shenandoah.**

115. **Conclusion B: Investors did not view Anadarko's March 13, 2012 statement regarding Anadarko's goal of delivering 800+ MMBOE Net Risked Resources in 2012 as an estimate of the projected value and size of Shenandoah.**

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[119] *Id.* p. 83.

116. **Conclusion C: Investors did not view Anadarko's March 2013 statement announcing the results of Shen-2 as an estimate of the projected value and size of Shenandoah.**

117. **Conclusion D: Investors did not view Anadarko's March 4, 2014 statement about Anadarko's "900+ MMBOE Net Discovered Resources" and the Shenandoah Basin constituting a "~$2 - $4 Billion Net Opportunity" as an estimate of the projected value and size of Shenandoah.**

5.1.4. Support for Conclusions

118. **Conclusion A: Investors did not view Anadarko's February 2009 announcement about the Shenandoah discovery well as an estimate of the projected value and size of Shenandoah.**

119. When Anadarko announced the Shen-1 discovery well, they stated that it "encountered net oil pay approaching 300 feet in the Wilcox formation," and that "[i]nitial data indicates the Shenandoah discovery has reservoir properties that appear to be of much higher quality than [the] industry has seen previously in the emerging Lower-Tertiary pay."[120]

120. As explained *supra* in section 4.1.1, investors understood that a discovery well is only the first step toward appraising any given resource. This process, which could take upwards of a decade, involves a significant amount of time and capital, and may not ultimately result in a FID.

121. Investors did not understand the announcement of Shen-1, which discussed net pay and reservoir properties, as a resource range. As Anadarko noted in the press release

[120] Anadarko Petroleum Corporation, "Anadarko Announces Another Deepwater Gulf of Mexico Discovery," February 4, 2009, p. 1 (APC-01335462).

announcing the well, "Anadarko and the co-owners of the discovery are evaluating the well results and the next steps toward future appraisal activity." [121] As such, investors understood that Shen-1 was a promising discovery but was not guaranteed, and that Anadarko needed to go through the appraisal process in order to understand and size the resource. Investors did not understand that the results of a single discovery well could have confirmed a large, economically productive resource.

122. **Conclusion B: Investors did not view Anadarko's March 13, 2012 statement regarding Anadarko's goal of delivering 800+ MMBOE Net Risked Resources in 2012 as an estimate of the projected value and size of Shenandoah.**

123. The slide at issue is entitled "Building Upon Momentum in 2012" and contains the statement: "Deliver 800+ MMBOE of Net Risked Resources." Risked resources means that the applicable reported volumes or revenues have been adjusted based on the chance of commerciality of such resources.[122] In the context of this slide, I understand net risked resources to reflect risked resources (resources multiplied by a probability estimate) net of Anadarko's (then) 30% working interest.[123]

124. Investors understood that the 800+ MMBOE Net Risked Resource estimate was Anadarko's goal across its entire portfolio for 2012. As Daniels explained during the March 13 investor call, "2012, if you look at what the program looks like, this year we're going to be over 800 million barrels of net risked resources. This is the target we put out there . . . Because of the success we've had, because of the significant numbers of appraisal wells we have to do and

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[121] *Id.*

[122] Canadian Securities Administrators, CSA Staff Notice 51-324 – Revised Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities, December 4, 2014, p. 15 https://www.osc.ca/sites/default/files/pdfs/irps/csa_20141204_51-324_51-101-glossary.pdf

[123] *Id.* p. 10.

the de-risking of the additional exploration opportunities, we feel comfortable putting out an 800 million barrel resource number as our target for that $1.4 billion investment."[124]

125. While Plaintiffs contend that "Shenandoah alone constituted approximately one-third of the projected resources to meet that goal,"[125] I have not seen any evidence that suggests that Anadarko made that representation. My review of the presentations and associated transcripts did not identify any suggestion that Anadarko attributed one third of that estimate to Shenandoah.

126. Investors did not attribute any significant portion of the 800+ MMBOE goal to the Shenandoah appraisal project. As discussed in Section 4.2.1, Shenandoah constituted only a small portion of Anadarko's portfolio. Moreover, at this point, only the Shenandoah discovery well had been drilled. Shenandoah is listed in the presentation as a "discover[y] [u]nder [a]ppraisal,"[126] and "Shenandoah appraisal" is listed as one of Anadarko's planned activities for 2012.[127] As such, investors did not attribute any significant portion—let alone one third—of the 800+ MMBOE to Shenandoah.

127. **Conclusion C: Investors did not view Anadarko's March 2013 statement announcing the results of Shen-2 as an estimate of the projected value and size of Shenandoah.**

128. Plaintiffs take issue with Anadarko's statement announcing the results of the Shen-2 appraisal well. While investors understood that the more than 1,000 net feet of oil pay—a

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[124] Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012, p. 37.

[125] Amended Complaint ¶ 31.

[126] Anadarko Petroleum Corporation, Investor Conference Presentation, March 13, 2012, p. 100.

[127] *Id.* p. 107.

fact Plaintiffs do not allege is false—was a promising discovery, the announcement did not speak to the size of the resource as a whole.

129. Investors understood that there would be additional appraisal drilling following Shen-2. As such, investors did not interpret Anadarko sharing the results of Shen-2 as the company estimating or projecting the size of Shenandoah to any reasonable degree. Indeed, Daniels stated during the investor call that Anadarko was "incorporating the information obtained from Shenandoah-2 into [its] planning and anticipate[ed] further appraisal drilling to advance this potentially giant project."[128]

130. Investors also understood from the announcement that Anadarko's potential success in the deepwater Gulf of Mexico would be based in part on its ownership of multiple prospects. Daniels said, "With ownership in the successful Shenandoah wells, the adjacent Yucatan prospect, and the very encouraging results from the nearby Coronado well, Anadarko is strategically positioned in the Shenandoah Basin, which has the potential to become one of the most prolific new areas in the deepwater Gulf of Mexico."[129] Investors understood that the Shenandoah Basin, not the Shenandoah project alone, was an area with the "potential to become one of the most prolific new areas in the deepwater Gulf of Mexico," depending on the appraisal results in Shenandoah and other nearby projects. [130]

131. Investors understood that the appraisal program was in its early stages, and that any development would depend on the findings of the appraisal program, cost of development, and macroeconomic factors such as the price of oil. Anadarko repeatedly disclosed in its

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[128] Yahoo Finance, "Anadarko Announces Shenandoah Appraisal Well Encounters More Than 1,000 Net Feet of Oil Pay," March 20, 2013, p. 1, http://www.finance.yahoo.com/news/anadarko-announces-shenandoah-appraisal-well-200500390.html.

[129] *Id.*

[130] *Id.*

SEC filings that development would depend on the price of oil. In its Q1 2013 10-Q, for instance, Anadarko wrote, "The Company's most significant market risk relates to prices for natural gas, crude oil, and NGLs. Management expects energy prices to remain volatile and unpredictable. As energy prices decline or rise significantly, revenues and cash flows are likewise affected. In addition, a non-cash write-down of the Company's oil and gas properties or goodwill may be required if commodity prices experience a significant decline."[131] Anadarko made these disclosures both before and throughout the Class Period.

132. After announcing the results of Shen-2, Anadarko continued emphasizing to investors that the project was in its early stages. On May 7, 2013, during Anadarko's Q1 2013 earnings call, Walker and Daniels explained that Shenandoah was still in the appraisal stage. Daniels remarked that "Shenandoah obviously needs additional drilling."[132] He noted that they were "waiting on the Yucatan results," which were "really key for the overall Shenandoah/Yucatan area."[133] On the same earnings call, an analyst with Bank of America Merrill Lynch, asked Robert Lawler, Anadarko's VP of International & Deepwater Operations, whether it was "too early to really think about development options" in Shenandoah. Lawler made clear that Shenandoah was still in its early stages and appraisal had not been completed, remarking that the analyst's "comment is exactly right," that "[i]t's very early, and we're looking forward to the appraisal program."[134]

133. The Shenandoah Partners similarly echoed that the project was in its early stages. In its Q2 2013 earnings call, Cobalt's CEO Joseph Bryant made remarks that demonstrated that the Shenandoah Partners were still assessing Shenandoah and needed to "drill another

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[131] Anadarko Petroleum Corporation, Q1 2013 10-Q, May 6, 2013, p. 41.

[132] Anadarko Petroleum Corporation, Q1 2013 Earnings Call Transcript, May 7, 2013, p. 7.

[133]*Id.* p. 5.

[134] *Id.* p. 10.

appraisal well," projected for late 2013 or even 2014.[135] He stated that Cobalt "certainly doe[s] have views, pre-drill and post-drill" about Shenandoah but "d[id not] know that that's going to end up that way,"[136] emphasizing that, "the great thing about this business is people drill wells, then they prove themselves right or wrong" and "at the end of the day, what we've got to do at Shenandoah is drill another appraisal well."[137] Bryant made clear that the Shenandoah Partners still needed to "find out how deep that oil column goes on that Shenandoah structure."[138]

134. During its April 25, 2013 earnings call, ConocoPhillips also emphasized that it was too early in the project to even give a timeline for production. On the call, Paul Cheng, a Senior Vice President at Barclays Capital, Inc., described Shenandoah as a "monster well" and asked, "[g]iven it's so great in terms of the size" what the timeline for production would be, predicting "at least another two years for [an] additional appraisal well."[139] Matthew Fox, Executive Vice President of Exploration and Production at ConocoPhillips, responded, "We're still working on that, Paul. It's a good question and we're in the middle of working out the timeline and the appraisal request for that well. So it's too early to give you a timeline for that."[140]

135. Comments from equity analysts around March 2013 reflect that while some analysts speculated about the resource size—resulting in a wide range of estimated sizes—Anadarko itself did not publicly provide a possible resource range. It was common for

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[135] Cobalt International Energy Inc., Q2 2013 Earnings Call Transcript, July 30, 2013, p. 19.

[136] *Id.*

[137] *Id.*

[138] *Id.*

[139] ConocoPhillips, Q1 2013 Earnings Call Transcript, April 25, 2013, p. 15.

[140] *Id.*

analysts to take the limited information provided by Anadarko and the Shenandoah Partners and create their own models and assumptions. These were inherently speculative and vary across analysts, as was the case here.

a. JP Morgan: JP Morgan noted that in releasing the Shen-2 data, "APC has not provided an overall estimated resource size."[141]

b. Credit Suisse: "Our base case seems too conservative. Despite being in the lower tertiary, APC believes Shenandoah has higher quality reservoir characteristics more typical of the Miocene. Our base case, which now appears conservative given the size of the oil column in the appraisal well, estimated a discovery at Shenandoah could be worth $1.70 per APC share based on the company's 30% working interest, 340 MMBoe of recoverable reserves, $3.3 billion of development costs, initial production in late 2017, and a $90/bbl long-term oil price (Brent). For Shenandoah, a resource range of at least 400 to 550 MMBoe appears more appropriate. The initial discovery well, which was drilled up dip, encountered 300 net feet of pay. Assuming the appraisal area encompasses roughly 4,000 to 5,000 acres, we believe the market will initially assign a resource range of 400 to 550 MMBoe."[142]

c. Barclays: "Shenandoah appraisal well encounters 1000+ net pay; We speculate size of discovery could be 300-1700 mmboe gross, perhaps worth $5-25 per share . . . The appraisal well at the Shenandoah discovery encountered more than 1,000 net feet of oil pay in multiple high-quality Lower Tertiary-aged reservoirs and marks one of Anadarko's largest Gulf of Mexico discoveries. The Shenandoah-2 well was drilled 1.3

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[141] JP Morgan, "Anadarko Petroleum More Success in the Deepwater GoM; Shenandoah-2 Encounters >1,000 Net Feet of Oil Pay and No Oil-Water Contact – ALERT," March 20, 2013, p. 1 (APC-00572780).

[142] Credit Suisse, "Shenandoah: A Doozy of a Discovery Indeed," March 20, 2013, p. 1 (CS_000058).

miles southwest and approximately 1,700 feet structurally down-dip from the discovery well which encountered 300+ feet of net pay back in 2009. Anadarko reported that the targeted sands were full to base with no oil-water contact and that the log and pressure data from the well indicate excellent quality reservoir and fluid properties (much higher quality than previously encountered by industry Lower Tertiary discoveries)."[143]

d. Capital One: "APC, along with partners CIE and MRO, announced extraordinary Shenandoah-2 well results yesterday in what appears to be a game changing discovery in deepwater GOM. Shenandoah-2, which tested the down-dip extent of the previous Shenandoah discovery well (2009 discovery logged 300+ net feet of pay), encountered more than 1,000 net feet of oil pay in high-quality Lower-Tertiary aged reservoirs, marking one of the largest discoveries ever in GOM. As a result, we are increasing our gross 2P estimate to 900 MMboe for Shenandoah (we estimate a range of 800 - 1,000 MMboe) from a previously conservative 225 MMboe expectation. Increased resource estimate at $12/boe pricing adds $4/ share to APC (30% WI), $2.90/share to CIE (20% WI), and $1/share to MRO (10% WI). This exciting story is far from over as we await results from 2 other wells in the Shenandoah mini-basin with Yucatan (RDS operated, APC 15% WI) and Coronado (CVX operated, APC 15% WI) results expected any day now. News of this Lower-Tertiary success also a positive read through for CIE, which has identified 10 additional lower tertiary prospects."[144]

e. Credit Suisse: "Recalibrating 'blue sky' potential of Shenandoah. In our note last week, we highlighted 'blue sky' potential of $4.00 per APC share (excluding

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[143] Barclays, "Anadarko Petroleum (APC) – Shenandoah appraisal well encounters 1000+ net pay; We speculate size of discovery could be 300-1700 mmboe gross, perhaps worth $5-25 per share," March 20, 2013, p. 1.

[144] Capital One, "APC Announces Major GOM Discovery," March 20, 2013, p. 1.

Coronado/Yucatan) if the Shenandoah discovery approached 650 MMBoe. As the first appraisal well encountered in excess of 1,000 feet of net pay and no oil water contact, Shenandoah could be one of the largest discoveries ever drilled in the GoM, with a resource range approaching 1 BBoe."[145]

136. **Conclusion D: Investors did not view Anadarko's March 4, 2014 statements about Anadarko's "900+ MMBOE Net Discovered Resources" and the Shenandoah Basin constituting a "~$2 - $4 Billion Net Opportunity" as an estimate of the projected value and size of Shenandoah.**

137. Plaintiffs first take issue with Anadarko's statement about "900+ MMBOE Net Discovered Resources," a "third of which" they claim "was attributable to Shenandoah."[146] Net Discovered Resources are equal to gross discoverable resources times the probability of development.[147]

138. While Plaintiffs again claim that Shenandoah accounted for one-third of this net discovered resources figure, neither the presentation nor the call transcript suggests Anadarko made this representation. I am not aware of any other instances in which Anadarko may have made this representation.

139. Plaintiffs also take issue with Anadarko listing Shenandoah Basin as a "~$2 to $4 billion net opportunity."[148] Plaintiffs claim the "public characterization of Shenandoah as a '~$2 - $4

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[145] Credit Suisse, "Anadarko Petroleum Corp. Shenandoah: A Doozy of a Discovery Indeed," March 20, 2013, p. 2, (CS_0000588).

[146] Amended Complaint ¶ 34.

[147] Canadian Securities Administrators, CSA Staff Notice 51-324 – Revised Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities, December 4, 2014, p. 10, https://www.osc.ca/sites/default/files/pdfs/irps/csa_20141204_51-324_51-101-glossary.pdf

[148] Anadarko Petroleum Corporation, Investor Conference Slides, March 4, 2014, p. 83.

Billion Net Opportunity' was vastly overstated and required a significant downward adjustment."[149]

140. Investors understood that any potential development would depend on further appraisal, the cost of development, external conditions such as the price of oil, and how the investment would fit into Anadarko's existing portfolio. Anadarko explained as much during its March 2014 investor conference. Daniels, who had been promoted to Executive Vice President, International and Deepwater Exploration, described the role of the Exploration Engineering Group at Anadarko as "value creation": "When we go out and we find something, we create value. When we do a lot of it, it gives us a lot of optionality. What are we going to do with this value? Are we going to take it to full production? Are we going to bring in a partner? Are we going to monetize it? The more success we have in the exploration world, the more value we create and the more we have options as we go forward."[150] He went further: "We go out and we make discoveries. . . So we drill the wells, test our ideas. If we have success, we've just enhanced that value. And then as we appraise it we decide, what are we going to do with this? And that's where we can provide that optionality to realize and enhance the value within the portfolio. That's our business, our role."[151]

141. Daniels emphasized that exploration value creation is based on a balanced portfolio, which can be impacted by changing conditions and commodity pricing, among other things. He highlighted that Anadarko "optimize[s] [its] portfolio all the time": "We have to have a deep portfolio just like the development team has to have a deep portfolio of opportunities, because that gives you the flexibility to respond to changing conditions, to changing risk, pricing, whatever it may be. The more choices you have in that portfolio of quality, the

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[149] Amended Complaint ¶ 36.

[150] Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014, p. 42.

[151] *Id.*

better you're going to be able to allocate capital and the better your success rate's going to be."[152]

142. Daniels continued by describing the exploration process, which begins with drilling exploration wells. If the wells are successful, Anadarko would "optimize" and "test it."[153] Daniels explained that one of the ways that Anadarko "optimize[s] and reduce[s] risk would be [to] acquire data, apply technology."[154] He acknowledged that they could incur "a lot of dollars" to assess and if those prospects did not appear to be economically favorable, ultimately Anadarko might "get those out of the portfolio."[155] He explained, "Every time we drill appraisal, we're reducing risk. We're getting more confidence on the resource size. So how they move through the portfolio with the additional information that's gained from every subsequent activity is how we get to that value realization."[156] Projects are "continuously in motion."[157]

143. With this in mind, investors understood that the slide listing the Shenandoah Basin as a "~$2 - $4 Billion Net Opportunity" was not an estimate of the size and value of Shenandoah. Investors understood this number—which is notably an estimate for the entire Shenandoah Basin, not solely the Shenandoah appraisal project—to be a highly preliminary and speculative estimate subject to substantial revisions depending on the findings of future

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[152] *Id*. p. 43.

[153] *Id*. p. 44.

[154] *Id*. p. 46.

[155] *Id*.

[156] *Id*.

[157] *Id*.

appraisal wells, technological development, and commodity pricing, among other factors. Investors understood that this was an opportunity and potential outcome.

144. In speaking about this slide, Daniels explained that it described the potential value creation of the Shenandoah Basin, which was early in the appraisal process with many unknowns. He described the Shenandoah Basin in broad terms: "This is where a lot of focus on the appraisal is happening, three big discoveries out there. We have a working interest in all of them. We're the only company that does. We're going to be the operator of two of them at Shenandoah and Coronado and if you go back through time and look at the maps you'll notice that the Coronado working interest has gone up."[158] Daniels explained that they "have a substantial interest in all of these," and that "we just think it's the greatest thing in the world when you can go in at low interest, spend money to make a discovery and then for very little money actually increase your interest in that discovery and have the potential to the upside."[159] He further explained that the $2 to $4 billion figure was based on Anadarko's success in all three fields: "We think that controlling both Coronado and Shenandoah as an operator will give us a lot more optionality and flexibility and we plan to drill these three, the two that are drilling, one more in Shenandoah and potentially get one more in 2014, so a lot of activity. We're going to have a lot of knowledge post this drilling and you can already see on a net risk basis we think our ownership position **in the entire basin is a $2 billion to $4 billion opportunity.** That's on a risk basis. That's what we have in our portfolio model."[160] In saying this, Anadarko made clear that Shenandoah was in the early stages of appraisal and that any estimates were preliminary.

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[158] *Id*. p. 48.

[159] *Id*.

[160] *Id*. (emphasis added)

145. Daniels also highlighted potential challenges of the region, however, explaining that its discoveries in the Shenandoah Basin were "sub-salt," and required "seismic acquisition and imaging in very, very complex structural regimes."[161]

146. During the same call, Jim Kleckner, Executive Vice President-International and Deepwater Operations, declined to directly answer a question about the development plan for the Shenandoah and Phobos projects, saying, "Some of those projects are in the early stages of appraisal, and we have more work to do out there to quantify the resource ranges and come up with the proper development solutions once we see commercial resource opportunity."[162] In other words, Kleckner made clear that the Shenandoah Partners needed to do more appraisal wells to understand the resource range and had not yet, at that time, determined that Shenandoah would be profitable.

147. Anadarko continued this message as they described Shenandoah over the following months. On April 7, 2014, Leyendecker gave a presentation about exploration in the Gulf of Mexico at the American Association of Petroleum Geologists ("AAPG") Annual Convention and Exhibition. He reiterated his view that the Shenandoah Basin was a $2 to $4 billion dollar opportunity but cautioned that that it was "not quite ready for primetime," that it was "premature" to talk about the opportunity in detail, and that they needed "a couple of more penetrations" before they could do so. [163]

148. On May 6, 2014, Anadarko hosted a Q1 2014 earnings call during which an analyst from Jefferies, LLC, asked Daniels to expand upon Leyendecker's comments at the AAPG event,

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[161] *Id.*

[162] *Id.* p. 40

[163] American Association of Petroleum Geologists, Discovery Thinking: The Gulf of Mexico Advantage, April 7. 2014, https://www.aapg.org/videos/discovery-thinking/articleid/37096/ernie-leyendecker-discovery-thinking-the-gulf-of-mexico-advantage.

including the timing for Shenandoah. Daniels responded that "Ernie was right, the Shenandoah mini-basin is a very significant discovery for us and has a great deal of potential there[, b]ut we have a lot of work to do to get [the Shenandoah mini-basin] potential actually defined," including drilling a second appraisal well that would aid in determining "the overall resource size of just the Shenandoah field." [164] He also stated that the "second appraisal well is going to be focused on trying to define the oil water contact, start pushing it down dip and looking at the lateral continuity of those sands," which would give Anadarko "a much better handle on what the overall resource size of just the Shenandoah field is."[165]

149. Then, during Anadarko's October 29, 2014 earnings call, a research analyst asked how the well results from Yucatan, another field in the Shenandoah Basin, impacted Anadarko's thoughts on the Shenandoah Basin more broadly. Bob Daniels noted in his response that Shenandoah "may not have a huge oil accumulation," but would provide important information: "Shenandoah is going to be key in that while we may not have a huge oil accumulation there, it's real important to see what the reservoirs look like as we move across the field to make sure we have good continuity of reservoirs and that they're in pressure communication. So we'll be getting - trying to find the oil-water contact, try to get good pressure data, and we'll be taking . . . a pull core out of that well after we penetrate the lower - or the objective section. So a lot of work still to do. We're still excited about the Shenandoah Basin, the 3 -- Shenandoah 3 is going to be real key to us."[166]

150. Anadarko was not the only partner in the project cautioning that it was still in its early stages. For instance, Cobalt similarly emphasized that no development had been

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[164] Anadarko Petroleum Corporation, Q1 2014 Earnings Call Transcript, May 6, 2014, p. 12.

[165] *Id.* pp. 12-13.

[166] Anadarko Petroleum Corporation, Q3 2014 Earnings Call Transcript, October 29, 2014, p. 9.

sanctioned, saying that the "Shenandoah project is in the early stages of the project development life-cycle and will require substantial additional evaluation and analysis prior to the preparation of a development plan and seeking formal project sanction."[167]

151. Market participants understood that more appraisal wells would be drilled, and that development had not been sanctioned:

a. Capital One: "APC sees 5-7% CAGR production growth looking out through 2020 and that excludes deepwater projects like Shenandoah and Phobos which have not yet been sanctioned. The growth rate would also be higher in a sustained >$4.50 gas environment as gas development drilling would be ramped higher, but APC doesn't foresee that." [168]

b. Jefferies: "On the exploration front, APC will look to build upon the Shenandoah Basin success achieved in '13. Appraisal activity will continue in '14 at the Coronado, Yucatan and Shenandoah discoveries as part of the 6 – 8 well GoM program in '14."[169]

c. Guggenheim: "Anadarko continues to outperform industry peers on the exploration front, recording a 67% Deepwater exploration/appraisal success rate in 2013, including top-10 discoveries at Orea and Coronado. . . In the Shenandoah Basin, APC will drill 3-4 appraisal wells following recent discoveries at Shenandoah (30% WI), Coronado (35% WI), and Yucatan (25% WI)."[170]

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[167] Cobalt International Energy Inc., 2014 10-K, February 23, 2015, p. 5.

[168] Capital One, "APC Analyst Day Recap," March 6, 2014, pp. 1-2.

[169] Jefferies, "Anadarko (APC) Ops Update Untarnished By Tronox So Far," March 5, 2014, p. 6.

[170] Guggenheim, "APC – BUY – 2014 Analyst Day Highlights Robust and Option-Rich Upstream Portfolio; Raising PT to $110," March 5, 2014, p. 6.

152. In sum, investors understood Anadarko's statements to be early statements on the potential of a resource based on only a few wells. Investors understood that these statements did not provide an actual estimate on the resource size of Shenandoah.

5.2. Anadarko's Statements During the Class Period

5.2.1. Overview

153. Plaintiffs allege that Defendants "ma[de], issue[d], and disseminate[d] statements that omitted material facts necessary to make the statements made, in light of the circumstances under which they were made, not misleading."[171]

154. Specifically, Plaintiffs allege that Defendants omitted that:

> "(a) credible test results and analysis indicated Shenandoah was much smaller and less commercially viable than Defendants had previously and continued to indicate;
>
> (b) the Senior Reservoir Engineer for the Shenandoah resource had determined the reliability of test results and analysis that indicated the Shenandoah resource was much smaller and less commercially viable than Defendants had publicly indicated;
>
> (c) the fluid quality from the Shenandoah appraisal wells was poor;
>
> (d) Anadarko's RCT had determined the reliability of test results and analysis that indicated Shenandoah was much smaller and less commercially viable than publicly indicated;
>
> (e) Anadarko incentivized exaggerated resource assessments by offering bonuses to its exploration team based on preliminary assessments without validation by the development team or the RCT and without a claw-back for assessments later shown to be exaggerated;

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[171] Amended Complaint ¶ 94.

(f) Defendants had actively suppressed the truth about Shenandoah through a campaign of retaliation against and harassment of the Senior Reservoir Engineer Frye to set an example for others who were considering speaking the truth about Shenandoah;

(g) Shen 3 was a dry hole;

(h) Shen 4 confirmed massive salt deposits that would obstruct or prevent access to deposits;

(i) Shen 4 indicated a much smaller size resource than Defendants had described after Shen 2;

(j) Leyendecker prohibited employees from using accurate maps that would reveal faulting and other significant shortcomings in the Shenandoah resource;

(k) Anadarko had defied its own internal policies and procedures by, among other things, disregarding the findings and recommendations of the RCT; and

(l) Anadarko's plan for extracting oil from Shenandoah was one that no one had ever successfully deployed."[172]

155. Plaintiffs highlight several statements that they contend are misleading. In this section, I analyze how, in light of the industry knowledge, investors understood the allegedly misleading statements, Anadarko's other statements, the Shenandoah Partners' statements and comments made by market participants. As noted previously, I do not address every statement, but rather consider them in general groups.

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[172] *Id.* ¶ 95.

5.2.2. Allegations Related to 20K Technology

5.2.2.1. Plaintiffs' Allegations

156. Plaintiffs contend that Anadarko concealed that its "plan for extracting oil from Shenandoah was one that no one had ever successfully deployed."[173] I understand Plaintiffs to be referencing the 20,000 psi wellheads, often referred to as "20K wellheads" or "20K technology," required to withstand the pressure of the Shenandoah region.

5.2.2.2. Summary of Conclusions:

157. **Conclusion A: Investors were aware that 20K technology was still being developed.**

158. **Conclusion B: Investors understood that developing Shenandoah required 20K technology and that delays in developing that technology would impact if and when Anadarko and the Shenandoah Partners would develop the prospect.**

5.2.2.3. Support for Conclusions.

159. **Conclusion A: Investors were aware that 20K technology was still being developed.**

160. As noted above, Deutsche Bank highlighted on June 26, 2013 that "[c]ommercial development of the Wilcox remains difficult with discoveries in water depths over 10,000ft to the sea floor and high bottom hole pressures (20,000+ PSI) and temperatures (200+ Fahrenheit)."[174] It added that development in the Gulf of Mexico Lower Tertiary had been "slow to date, as the industry has wrestled with the technical and economic challenges of

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[173] *Id.* ¶ 95 (l).

[174] Deutsche Bank Securities, "Get Onboard with the Inboard: Rise of the Lower Tertiary 2.0," June 26, 2013, p. 4. (DEUTSCHE0005118).

developing a relatively lower quality reservoir . . . at temperature/pressure at the limit of industry capabilities."[175]

161. The media also reported on the state of 20K technology. In describing 20K technology, an article from an offshore oil and gas industry magazine published on December 1, 2015 stated that "new 20K control systems require a new approach to specification, acquisition, operation and maintenance procedures. . . OEMs [original equipment manufacturers] may need to implement changes to material characteristics and design parameters to mitigate the weight increase, but the increase in size also impacts the BOP [blowout preventer] control system in terms of control fluid pressure, flow rate, and volumetric capacity. Additional sensors and software will be required to monitor and control the more complex system. . . The design impact extends to other equipment on the rig that interfaces with the BOP, including the riser system, choke manifold, tensioners, riser handling, BOP handling, pressure testing equipment, and contingency systems such as capping stacks."[176] The article also noted that "[t]he 20K BOP is now an integrated system of equipment, controls and supporting infrastructure. Ensuring this new system meets the safety and performance requirements of the drilling campaign requires a new approach to the processes that define the way equipment is operated and maintained, as well as the competencies and skills of individuals in charge of the equipment."[177]

162. It was also known that BP was "pursuing Project 20K to develop subsea equipment that can withstand Lower Tertiary pressures of 20,000psi and temperatures as high as 350°-400°F."[178]

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[175] *Id.* p. 5.

[176] Offshore Engineer, "Preparing for a successful 20K BOP campaign," December 1, 2015, pp. 1–2.

[177] *Id.* p. 2.

[178] Offshore Engineer, "Spotlight on the Gulf," May 1, 2015, p. 2.

163. Anadarko itself publicly acknowledged the early state of 20K technology and assembled a team of experts, the 20A Project, to develop and monitor manufacturing of technology that could withstand the 20,000 psi pressures in the Gulf of Mexico.[179] In a November 2014 presentation, Jim Raney, Director of Engineering & Technology at Anadarko, discussed Anadarko's 20A Project and the development concepts and challenges in a 20,000 psi development for the Gulf of Mexico, specifically noting that Shenandoah had pressures "greater than 15K psi," meaning that it would require 20K technology.[180]

164. **Conclusion B: Investors understood that developing Shenandoah required 20K technology and that delays in developing that technology would impact if and when Anadarko and the Shenandoah Partners would develop the prospect.**

165. Investors were well aware prior to the start of the Class Period that Shenandoah required 20K technology, which was not available at the time. Anadarko openly acknowledged this fact. For instance, during a February 3, 2015 investor call, Jim Kleckner stated that Anadarko was "launching a basis of design for different types of development options" for Shenandoah.[181] He also explained that Anadarko was "incorporating a joint industry projects [sic] to look at the pressure regimes that we'll be operating in . . . [a]nd looking at

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[179] Anadarko Petroleum Corporation, "Developing Industry Solution for 20,000 psi Subsea Developments," November 19, 2014, slide 5.

[180] *See* Society of Petroleum Engineers – Gulf Coast Section, "Development of a 20,000 psi Drilling, Completion, Intervention, Subsea & Subsurface Equipment in 60,000 ft. water depth in the GoM," November 19, 2014, for the event description; Anadarko Petroleum Corporation, "Developing Industry Solution for 20,000 psi Subsea Developments," November 19, 2014, slide 3, https://www.spegcs.org/media/files/files/b06de440/2014-11-19_20A_HPHT_Presentation_Jim_Raney.pdf. Anadarko referred to the 20K technology development project as the 20A Project.

[181] Anadarko Petroleum, Q4 2014 Earnings Call Transcript, February 3, 2015, p. 8.

20,000 PSI systems for handling the pressures we anticipate encountering in the reservoir."[182]

166. On June 10, 2015, a news article reported that Anadarko was "seeking a drillship with a 20K BOP stack and [had] invited several drilling rig contractors to bid on the job," and that "[i]nterested rig contractors [were] understood to be in discussion with various shipyards regarding possible construction options. If the project [went] forward, rig delivery would be in 2019, at the earliest."[183]

167. On July 6, 2015, Jefferies wrote that "Shenandoah [d]evelopment [was] [u]nlikely [n]ear [t]erm, [b]ut [p]rovides [l]ong-[t]erm [p]otential," explaining, "While we believe Shenandoah could be one of the largest GOM discoveries, we currently give no credit in our RAAV due to needed improvements in drilling technology (new build drillships with dual 20k PSI BOPs), which are unlikely to be available in the near-term."[184]

168. The following year, on May 3, 2016, during Anadarko's Q1 2016 earnings call, Daniels explained the need to continue the appraisal program, rather than transition to development, based, in part, on the "technically challenging environment from a pressure standpoint."[185] Later that day, in assessing Anadarko's and Cobalt's earnings releases, an analyst from Morgan Stanley noted, "CIE and APC highlight Shenandoah risks, development hurdles . . . Beyond faulting, high reservoir pressure and associated need for

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[182] *Id.*

[183] Offshore, "Lower oil prices begin to take toll on Gulf drilling," June 10, 2015, https://www.offshore-mag.com/drilling-completion/article/16758375/lower-oil-prices-begin-to-take-toll-on-gulf-drilling.

[184] Jefferies, "Oil & Gas Exploration & Production Reduce Nat Gas Price Outlook, Remain Constructive; Upgrade APC, NBL, EOG," July 6, 2015, p. 6 (APC-01319911).

[185] Anadarko Petroleum Corporation, Q1 2016 Earnings Call Transcript, May 3, 2016, p. 8.

20kpsi equipment (which industry is in the process of standardizing) add to the development challenges."[186]

169. On September 13, 2016, a news article reported that the development of Shenandoah would need "a rig with a 20K psi BOP should the project move to the development phase," suggesting that it would be a "step-change for the industry, as the standard BOP on most high-specification floaters today is a 15K BOP."[187]

170. As these reports show, there is no basis to say that Anadarko "omitted" that its "plan for extracting oil from Shenandoah was one that no one had ever successfully deployed."[188] Rather, Anadarko made clear that the Shenandoah project required 20K technology and its development hinged on the availability of this technology. Investors understood during the Class Period that the development of 20K technology might delay any development of Shenandoah.

5.2.3. Allegations about Shen-3

5.2.3.1. Plaintiffs' Allegations:

171. Plaintiffs allege that, in discussing the second appraisal well, Shen-3, Anadarko discussed "positive aspects of the Shenandoah resource while concealing negative ones," including that Shen-3 was a dry hole.[189]

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[186] Morgan Stanley, "Cobalt International Energy Inc: Headwinds Accumulate," May 3, 2016, p. 2 (FIAM-ANAD-003626).

[187] Offshore, "Deepwater development in Golden Triangle down but not out," September 13, 2016, https://www.offshore-mag.com/deepwater/article/16754724/deepwater-development-in-golden-triangle-down-but-not-out.

[188] Amended Complaint ¶ 95(l).

[189] *Id.* ¶¶ 97, 138.

172. Two of the statements about Shen-3 with which Plaintiffs take issue occurred before the start of the Class Period. First, in Anadarko's February 2, 2015 Operations Report, Anadarko described the Shen-3 appraisal results as follows:

> "Shenandoah: Drilling of the second Shenandoah appraisal well, Shenandoah-3, concluded in the quarter. The Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered more than 1,000 feet of net oil pay in excellent quality, Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, reservoir qualities and down-dip thickening. The well also enabled the projection of oil/water contacts based on pressure data, and reduced the uncertainty of the resource range. Planning is currently underway for the next appraisal well, which the company expects to spud in the 2nd quarter of 2015."[190]

173. Second, during a February 3, 2015 investor call, Plaintiffs allege that "Daniels described Shen-3 in glowing terms, claiming there was 1,500 feet of 'excellent' sand continuity."[191]

174. The remaining statements about Shen-3 in the Amended Complaint did occur during the Class Period. Plaintiffs allege that the Class Period began on February 20, 2015, when Anadarko filed its 2014 10-K. In the 10-K, Anadarko stated:

> "Shenandoah Basin: The Company spud the Shenandoah-3 well, its second appraisal well at the Shenandoah discovery, in the second quarter of 2014. The well finished drilling at the end of 2014 and found approximately 50% (1,470 feet) more of the same reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered over 1,000 feet of net oil pay in excellent quality Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, excellent reservoir qualities, and down-dip thickening. The well also enabled the projection of oil-water contacts based on pressure data and reduced the uncertainty of the

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[190] Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015, p. 12.

[191] Anadarko Petroleum Corporation, 2014 10-K, p. 9; *see* Amended Complaint ¶ 52.

> resource range. Planning is underway for the next appraisal well, which the Company expects to spud in the second quarter of 2015."[192]

175. Plaintiffs contend that "[t]he 2014 10-K also contained 14 pages of detailed risk factors without disclosing that such risks had already materialized as to the Shenandoah resource, including 'the risk that we will not encounter commercially productive oil or natural-gas reservoirs' and 'exploratory drilling involves greater risks of dry holes or failure to find commercial quantities of hydrocarbons.'"[193]

176. Plaintiffs further take issue with Anadarko's March 3, 2015 press release "announcing Anadarko's '2015 initial capital expectations and guidance,'" which "stated that 'Anadarko continues to advance existing discoveries at Shenandoah in the Gulf of Mexico,'" and that Anadarko had a "high-quality portfolio of opportunities, strong balance sheet and efficient capital allocation to preserve value and maintain flexibility."[194]

177. Plaintiffs point to statements made during Anadarko's 2015 capital program and guidance conference call. Plaintiffs allege that "Daniels touted the 'successful appraisal' of Shen-3," calling it a "very successful appraisal well."[195] Plaintiffs point to a slide from a presentation Anadarko showed during this same call. The slide is entitled "Continuous Mega-Project Pipeline Delivering Results," and is reproduced below. Plaintiffs claim that Defendants "touted Shenandoah as a 'High-Margin' project in the Company's 'Mega-Project Pipeline.'"[196]

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[192] Amended Complaint ¶ 97.

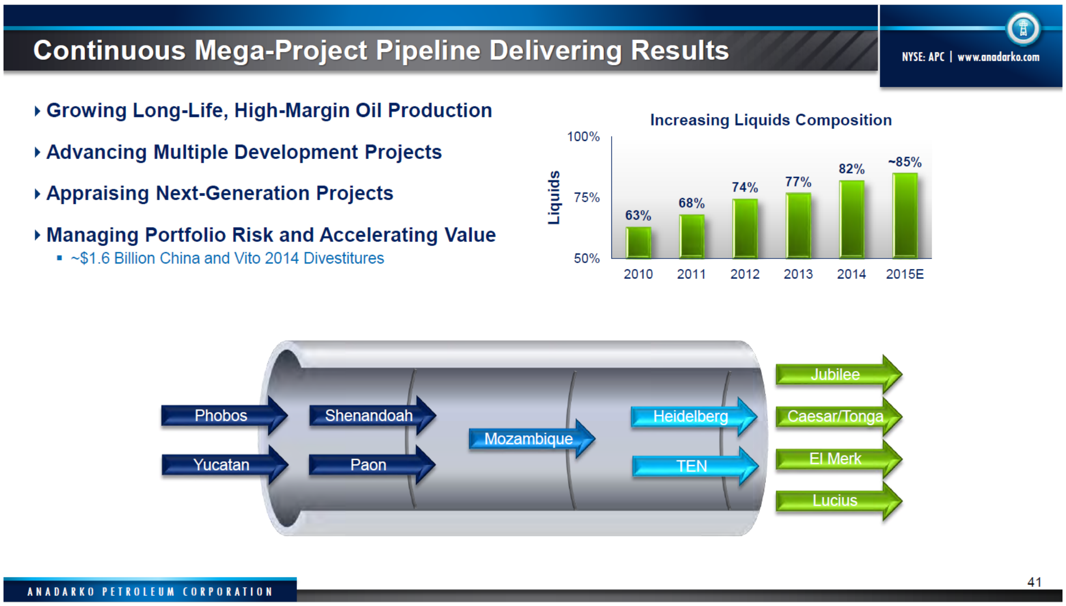
[193] *Id.* ¶ 98.

[194] *Id.* ¶ 101.

[195] *Id.* ¶ 102.

[196] *Id.* ¶ 103.

Figure 12. Reproduced Slide: Continuous Mega-Project Pipeline Delivering Results[197]



5.2.3.2. *Summary of Conclusions*

178. **Conclusion A: Investors understood from Anadarko's *pre-Class Period* statements that the Shen-3 well did not encounter hydrocarbons.**

179. **Conclusion B: Investors understood from Anadarko's statements during the Class Period that the Shen-3 well did not encounter hydrocarbons.**

180. **Conclusion C: Investors understood from the Shenandoah Partners' statements about Shen-3 that the well did not encounter hydrocarbons.**

181. **Conclusion D: Evidence shows that investors understood that Shen-3 did not encounter hydrocarbons, (2) reduced the areal extent of the hydrocarbon bearing portion of the**

[197] Anadarko Petroleum, Capital Program and Guidance Call Presentation, March 3, 2015, p. 41.

reservoir, and (3) while Anadarko did not release a resource range, Shen-3 likely reduced the potential resources.

182. **Conclusion E: The market understood that, even after Shen-3, Anadarko and the partners needed to drill additional appraisal wells in order to understand the Shenandoah resource potential.**

183. **Conclusion F: At several points throughout the Class Period, Anadarko disclosed that Shen-3 did not encounter hydrocarbons.**

5.2.3.3. Support for Conclusions

184. **Conclusion A: Investors understood from Anadarko's** ***pre-Class Period*** **statements that the Shen-3 well did not encounter hydrocarbons.**

185. Plaintiffs do not point to any instances in which Anadarko said that Shen-3 encountered hydrocarbons, nor am I aware of any such statements.

186. Based on my experience, investors in the oil and gas industry understood from Anadarko's statements about Shen-3 from before the Class Period even started that the well did not encounter hydrocarbons.

187. On February 2, 2015, Anadarko issues a Press Release with its Q4 2014 and full-year results, which stated, "Appraisal activity offshore Côte d'Ivoire at the Paon discovery and in the Gulf of Mexico at the Shenandoah discovery continued to validate the company's geologic models around these apparent commercial discoveries." [198] With the press release,

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[198] Anadarko Petroleum Corporation, Form 8-K, February 2, 2015, p. 3.

Anadarko also released its Operations Report. That Operations Report included the following description of Shenandoah:

> "Drilling of the second Shenandoah appraisal well, Shenandoah-3, concluded in the quarter. The Shenandoah-3 well found approximately 50% (1,470 feet) more of the same well-developed reservoir sands 1,500 feet down-dip and 2.3 miles east of the Shenandoah-2 well, which encountered more than 1,000 feet of net oil pay in excellent quality, Lower Tertiary-aged sands. The Shenandoah-3 well confirmed the sand depositional environment, lateral sand continuity, reservoir qualities and down-dip thickening. The well also enabled the projection of oil/water contacts based on pressure data and reduced the uncertainty of the resource range.
>
> Planning is currently underway for the next appraisal well, which the company expects to spud in the 2nd quarter of 2015."[199]

188. Notably, the announcements—while noting that Shen-2 encountered over 1,000 feet of net oil pay—did not attribute any net oil pay to Shen-3. As noted in section 4.1.1, Daniels previously explained that Anadarko announces any net pay when announcing well results: "We also come out on wells, and we give net feet of pay. We don't give gross feet of pay. We don't give gross column, except in certain circumstances to talk about the potential height of a hydrocarbon column. But we give net pay numbers."[200] Anadarko consistently announced net pay for wells that encountered hydrocarbons. For instance, in announcing the results of the first two wells on the project, Anadarko announced the net pay it had encountered. In its press release announcing Shen-1, Anadarko stated that the discovery well "encountered net oil pay approaching 300 feet in the Wilcox formation."[201] In announcing the results of Shen-2, Anadarko stated that it "encountered more than 1,000 net

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[199] Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015, p. 12.

[200] Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012, p. 37.

[201] Anadarko Petroleum Corporation, "Anadarko Announces Another Deepwater Gulf of Mexico Discovery," February 4, 2009, p. 1 (APC-01338356).

feet of oil pay in multiple high-quality Lower Tertiary-aged reservoirs."[202] More fundamentally, because encountering hydrocarbons is a major finding in any well and the ultimate goal is to encounter commercially productive quantities of hydrocarbons in a given prospect, an investor would expect for an oil company to announce the net pay it encountered when it disclosed the final results of any exploration or appraisal well. Accordingly, because Anadarko did not include the net pay encountered in announcing the results of Shen-3, investors understood from this announcement that Shen-3 did not discover hydrocarbons.[203]

189. In addition, the Operations Report included a graphic showing that the Shen-3 well location was not located within the green shading associated with the hydrocarbon-bearing portion of the Shenandoah reservoir:

[202] Anadarko Petroleum Corporation, "Anadarko Announces Shenandoah Appraisal Encounters More than 1,000 Feet of Net Pay," March 19, 2013 (APC-00572655); *see* Yahoo Finance, "Anadarko Announces Shenandoah Appraisal Well Encounters More Than 1,000 Net Feet of Oil Pay", March 20, 2013, p. 1, http://www.finance.yahoo.com/news/anadarko-announces-shenandoah-appraisal-well-200500390.html.

[203] Investors understand that the fact that there is excellent sand quality, by itself, means little in terms of being able to ultimately develop a well. Depth and lateral space are needed to justify the development. This is why multiple wells are drilled: to determine the width of the reservoir and the potential recoverable reserves. Even if all appraisal wells show excellent sand quality but there is a lack of continuity among the wells then resource recovery would be more constrained.

Figure 13. Graphic from Anadarko's Q4 2014 Operations Report[204]

190. For comparison, earlier graphics, such as the one used in the March 4, 2014 presentation listing the Shenandoah basin as a "~$2 - $4 Billion Net Opportunity" (Figure 11, above), showed the then-upcoming Shen-3 well location to be within the hydrocarbon-bearing portion of the Shenandoah reservoir. These images indicated to viewers that while

191. Anadarko initially believed Shen-3 would be at or near the edge of the hydrocarbon-bearing portion of the Shenandoah reservoir, but it was not. Investors understood that this meant it did not encounter hydrocarbons.

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[204] Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015, p. 12.

192. Anadarko's statements during its February 3, 2015 Earnings Call further made clear that while Shen-3 did not encounter hydrocarbons, Anadarko viewed Shen-3 as successful because of the information it provided. [205]

193. During Anadarko's Earnings Call Douglas Leggate of Bank of America - Merrill Lynch, asked if Anadarko would speak to the "potential scale" and "potential development schedule" of Shenandoah. Walker responded that it was "a little early" for those discussions. Daniels then explained that they got "very good results for what we set out to do at the most recent appraisal well."[206] He detailed the well objectives, explaining that they were "looking to see if we could establish oil-water contacts at that location," "wanted to look at the lateral sand and the reservoir continuity," "[w]anted to look at the quality of the sands in that area," and "wanted to get pressure data to show pressure continuity into the other #2 well."[207] He then explained that the results showed Anadarko did achieve those goals:

> "And if you look at the results, we really did all of that. We have excellent lateral sand continuity. The packages are all present. They're very well correlatable, they've expanded. So that model of expansion did work out. We ended up with about 1,470 feet of gross sand section versus 1,000 feet that we had in the #2 well. The oil-water contacts were not encountered in the well. But based on the pressure data, we were able to project those up. So we got a much better handle on the oil in place and that has expanded with more confidence on it. So that was a very positive thing. Reservoir quality was good, so that gives us a lot of confidence on the potential for the water drive. So we've got a lot more confidence on our geologic model on the eastern side. On our structural interpretation, we've gotten a high point over there. And then that potential for

[205] Anadarko Petroleum, Q4 2014 Earnings Call Transcript, February 3, 2015, p. 8.

[206] *Id.* pp. 7-8.

[207] *Id.* pp. 7-8.

> the active water drive and a much higher confidence level and where oil-water contacts for the field lie."[208]

194. Daniels then provided the goals of the next appraisal well and additional work that needed to be done:

> "So as we move forward, we're looking at an additional appraisal well this year that will be to . . . the west of the #2 well to test the western portion with the same sorts of objectives, lateral sand continuity. But this one, we'll not be searching for the oil-water contact as much because we think we got a fairly good handle on that now. So we're looking at sand continuity, reservoir quality. We're talking about potentially getting a core in it, so we have a core in the reservoir section. Whereas we did get a core in the most recent well in the water section, which will give us a lot of good information. That well should spud in the second half of the year. And then based on these results and the upcoming well, the development team are already doing conceptual work."[209]

195. Kleckner added that they had substantial work to do regarding a potential development plan, but that the information from Shen-3 was helpful in progressing the project: "We've taken the full bypass core and we're working our reservoir simulation models right now to fully understand and characterize the sand quality, as Bob said. And we're also launching a basis of design for different types of development options. We're also incorporating a joint industry projects to look at the pressure regimes that we'll be operating in. And looking at 20,000 PSI systems for handling the pressures we anticipate encountering in the reservoir. So from a[n] evaluation and scoping standpoint, the work is progressing very well, and we'll wait to see what the results of the follow-on appraisal wells fully indicate for our resource size."[210]

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[208] *Id.* p. 8.

[209] *Id.*

[210] *Id.*

196. During the question and answer portion of the call, a question asked by an analyst, Charles Arthur Meade of Johnson Rice & Company, LLC, about the Operations Report's graphic of Shenandoah (Figure 13, above), makes clear that investors understood Shen-3 did not encounter hydrocarbons. Meade, picking up on the difference between the image of Shenandoah in the Operations Report and Anadarko's earlier releases, as well as the implications of those images, i.e., that Shen-3 had not encountered the hydrocarbon-bearing portion of the reservoir and that might therefore decrease internal resource estimates, asked:

> "If I could go back to the -- to some of the Shenandoah comments. It's -- I'm not sure if I'm interpreting this correctly. But I look at the -- your cartoon that you had previously -- and the cartoon you guys put in your operations report subsequent to this #3 appraisal well, and it looks like perhaps maybe you were surprised by how far down dip that you intersected that section. And I understand there's a lot of positive things you learned. But it seems to me that maybe the upper end of your reserve distribution would be curtailed by this result. And I'm just kind of looking to see if I'm right in that or get more color there."[211]

197. Daniels confirmed the well results reduced Anadarko's projections of the areal extent of the hydrocarbon-bearing portion of the reservoir and likely lowered their high-end resource estimates:

> "Yes, Charles, Bob again. After we drilled the Yucatan #2 well, we realized that there was a velocity. The section that gave us a velocity problem in the Oligocene and Upper Eocene, which we then rolled into our planning for the #3 well. And with that, we actually deviated the well to the North and West to try to get closer to where we would anticipate the oil-water contact. We also got some pressure data down at the Yucatan that we could project across without a lot of confidence. And so we did deviate to the northeast to get closer to that. With the -- section was present, which meant that we were about 300 feet lower than what we anticipated, which is nothing at these depths. So we actually felt

[211] *Id.* p. 11.

> like it came in pretty darn close to prognosis. And then the sand expanded. So at the lower levels, we were farther down dip because of the sand expansion, which we did anticipate as we went in. So as to the upper end of the range, you may be right that just the aerial extent based on, not just this well, but the information from Yucatan, pulled us in a little bit on that side of the structure. But it's not a very significant reduction in the upper end, and we still think this is a very -- has the potential to be a very large field."[212]

198. **Conclusion B: Investors understood from Anadarko's statements during the Class Period that the Shen-3 well did not encounter hydrocarbons.**

199. The Class Period begins with Anadarko's discussion of the Shen-3 results in its 10-K. The 10-K simply repeats the language from the February 2015 Operations Report, which, as discussed above, indicated that there were no hydrocarbons.

200. The additional statements Anadarko made in the following months confirmed that Anadarko viewed the well as successful because of the information the well provided—not because it encountered hydrocarbons.

201. During the March 3, 2015 Capital Program and Guidance Call, Daniels called Shen-3 a "very successful appraisal well."[213] But this, on its own, did not cause investors to believe that Shen-3 encountered hydrocarbons. Investors also understand there is a difference between the concepts of geological or technical success versus economic success. Many wells that encounter oil or gas are a "technical success" in that they encounter hydrocarbons. However, some wells that fail to encounter hydrocarbons, like Shen-3, uncover relevant, important data. For instance, wells that do not encounter hydrocarbons can help define the areal extent of a reservoir and can help locate faults and other potential reservoir properties. Economic success for the project, on the other hand, depends on multiple factors: (i)

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[212] *Id.* p. 12.

[213] *Id.*

volumes of recoverable hydrocarbons, (ii) the costs of drilling and installing the required production facilities, also a function of proximity to existing facilities, (iii) availability of internal and external capital, (iv) other opportunities available to the operator which may take capital away from a project (high-grading of opportunities), and (v) prevailing and predicted commodity pricing.

202. Moreover, the context of Daniels' statement is key: Daniels immediately explained why he viewed Shenandoah as successful, saying "We pushed down-dip on Shenandoah 3, searching for the oil-water contact, looking for reservoir continuity and quality and to get a core in the down-dip portions of the reservoir. This was a very successful appraisal well. In 2015, we'll drill northwest of the Shenandoah #2 well with our Shenandoah 4. This will be to extend the field to the west, an up-dip, and to obtain a core of the oil leg for our development planning."[214]

203. During this presentation, Anadarko presented a set of slides. Plaintiffs allege that Anadarko's slide entitled "Continuous Mega-Project Pipeline Delivering Results" was misleading. (Figure 12, above.) But this would also not indicate that Shen-3 encountered hydrocarbon or was near a FID. While Plaintiffs characterize this as Defendants "tout[ing] Shenandoah as a 'High-Margin' project in the Company's 'Mega-Project Pipeline,'"[215] the slide clearly differentiates "[g]rowing [l]ong-[l]ife, [h]igh-[m]argin [o]il [p]roduction"—which would not include the Shenandoah appraisal project—from "[a]ppraising [n]ext-[g]eneration [p]rojects." Investors did not understand Shenandoah, an early-stage appraisal project, to be producing oil or achieving any margins, let alone high margins.

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[214] *Id.*

[215] Amended Complaint ¶ 103.

204. More importantly, Anadarko included an image that, like the one in the Operations Report, indicated that Shen-3 did not encounter hydrocarbons.

Figure 14. Slide from March 3, 2015 Capital Program and Guidance Call Presentation[216]

205. **Conclusion C: Investors understood from the Shenandoah Partners' statements about Shen-3 that the well did not encounter hydrocarbons.**

206. Several Shenandoah Partners wrote off Shen-3 in January or February 2015:

a. On January 29, 2015, ConocoPhillips stated that it had "some dry hole costs related to the Shenandoah appraisal well that [it] wrote off."[217] On February 24, 2015,

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[216] Anadarko Petroleum Corporation, Capital Program and Guidance Call Presentation, March 3, 2015, p. 47.

[217] ConocoPhillips, Q4 2014 Earnings Call Transcript, January 29, 2015, p. 13.

ConocoPhillips disclosed that "[t]he second Shenandoah down dip appraisal well was spud in 2014 and expensed as a dry hole."[218]

b. On February 18, 2015, Marathon Oil announced that costs related to the "second Shenandoah appraisal well in the Gulf of Mexico were included in exploration expense during the quarter."[219]

c. On February 23, 2015, Cobalt disclosed that Shen-3 was a "dry well." Cobalt defined a "dry well" as "an appraisal or development well that proves to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well."[220] A dry well is in contrast to a "productive well," *i.e.*, a "well[] that ha[s] been drilled to the targeted depth and prove[s], in [Cobalt's] opinion, to be capable of producing either oil or gas" in commercial quantities.[221]

207. Investors understood from these announcements that Shen-3 did not encounter hydrocarbons.

208. Like Anadarko, Cobalt viewed Shen-3 as successful. Joseph Bryan, Chairman and CEO of Cobalt, described Shen-3 as "a highly successful appraisal well."[222] When asked about any hydrocarbon encountered in the well, James Painter, Executive Vice President, Execution and Appraisal, said, "I think we can say . . . [w]e did meet all of our pre-drill expectations. What we were looking for was looking to see what the down-dip sand quality was, the

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[218] ConocoPhillips, 2014 10-K, February 24, 2015, p. 8.

[219] Marathon Oil Corporation, 8-K, February 18, 2015, p. 12.

[220] Cobalt International Energy Inc., 2014 10-K, February 23, 2015, pp. 12-13.

[221] *Id.*

[222] Cobalt International Energy Inc., Q4 2014 Earnings Call Transcript, February 23, 2015, p. 6.

thickness, the capability about sand to produce, all of the things we were looking for were all met and what we were looking to accomplish with that appraisal well."[223]

209. Because Cobalt did not disclose that Shen-3 encountered any hydrocarbons, investors would understand that there were none.

210. **Conclusion D: Evidence shows that investors understood that Shen-3 (1) did not encounter hydrocarbons, (2) reduced the areal extent of the hydrocarbon bearing portion of the reservoir, and (3) likely reduced the potential resources.**

211. Evidence shows that market participants understood that the Shen-3 well was wet. This is particularly clear based on releases from Wood Mackenzie. Wood Mackenzie, sometimes referred to as "WoodMac," is an energy analytics company. During the Class Period, market participants such as investment firms could subscribe to Wood Mackenzie for industry, company, and asset-specific data. Investors used the reserve estimates Wood Mackenzie generated.[224] Several analysts, including one of Plaintiffs' own investment managers, produced Wood Mackenzie reports in this litigation.[225]

212. In February 2015, Wood Mackenzie published its asset report on Shenandoah. Wood Mackenzie's February 2015 Shenandoah asset report described the results of Shen-3: "In January 2015 it was announced that the well did not discover the oil/water contact

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[223] *Id.* p. 5.

[224] *See, e.g.*, Deutsche Bank, "Exploration Day Takeaways. NBL & APC Highlights," June 25, 2012 (DEUTSCHE0001176); Credit Suisse, "Anadarko Petroleum Corp: Equity dilution vs deal gains/shale acceleration," September 12, 2016 (CS_0000177); Citi, "E&P Sector Update As Summer Wraps Up," September 11, 2015 (CITI004017).

[225] *See, e.g.*, Morgan Stanley, "Anadarko Petroleum Corp, Still Running Faster than the Bear," October 28, 2015 (MS_ANADARKO_000061); Wood Mackenzie, "Pre-FID oil projects, Global breakeven analysis and cost curves," July 2015 (FIAM-ANAD-004939).

downdip, and additional appraisal drilling will take place later in the year."[226] In its report, Wood Mackenzie added, "There is considerable uncertainty around development options for Shenandoah at this early stage of appraisal, due to its remote location, extreme well and water depths, and few analogue fields in the Lower Tertiary Play."[227]

213. In a February 11, 2015 report, Wood Mackenzie highlighted what it considered "[l]imited appraisal success" Anadarko was experienced in the Gulf of Mexico: "Appraisal drilling in 2014 had limited success. Results from Coronado and Yucatan were disappointing. Anadarko terminated its leases at Coronado soon after the appraisal was completed in November. . . . The second appraisal well at Shenandoah was completed in late-2014 and the company announced in early-2015 that it came up dry. However, the well was testing the lateral limit of the reservoir and the results are not indicative of a large setback at the field."[228]

214. Analyst reports from before the Class Period confirm that market participants understood (1) that Shen-3 did not encounter hydrocarbons, (2) reduced the areal extent of the hydrocarbon bearing portion of the reservoir, and (3) likely reduced the potential resources. Many analysts explicitly noted that Anadarko did not release a resource range.

   a. Morgan Stanley: "Shenandoah-3 encountered 1,470ft of reservoir sand and data should enable projection of oil/water contact. The appraisal also 'reduced the uncertainty of the

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[226] Wood Mackenzie, "Shenandoah (WR 52) Asset Report," February 2015, p. 2 (APC-00053691).

[227] *Id.*

[228] Wood Mackenzie, "Deepwater Gulf of Mexico Upstream: 2014 in review," February 2015, p. 4 (APC-00161729).

resource range' which was not disclosed (MSe at 600Mmboe implying ~$712MM, $1.40/sh net to APC). Shenandoah-4 to be spud in 2Q15."[229]

b. Capital One: "ConocoPhillips reported last Thurs that the 2nd appraisal well at Shenandoah was a dry hole. . . . The unsuccessful well likely condemns at least some of the southeastern flank of the structure's aerial extent. Operator APC will next drill a 3rd appraisal well to test the western flank. We have been carrying Shenandoah as a 1 billion boe discovery in our APC model (300 MMboe net to APC's 30% WI, worth ~$3.6B or ~$7 per share). While it still could ultimately be that large, we think it's prudent to cut our resource estimate in half for now to 500 MMboe. We are thus cutting our NAV by $3 to $99."[230]

c. Johnson Rice & Company: "The latest Shenandoah appraisal well delivered a bit of a surprise, coming in 1,500 ft. down dip and wet versus the Shenandoah #2 to the west; the result appears to have shifted the geologic interpretation of the basin a bit, as seen in Figures 1 and 2 below, and the upside case for the accumulation has likely been trimmed a good deal."[231] The images that Johnson Rice & Company showed included the new graphic from the operations report and an older graphic showing a larger potential hydrocarbon field.

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[229] Morgan Stanley, "4Q14 Misses but on Non-Cash," February 2, 2015, pp. 1-2.

[230] Capital One, "Morning Energy Summary," February 2, 2015, p. 2 (APC-01319907).

[231] Johnson Rice & Company, "Sales Note: 4Q14 Results Mixed, Few Clues About 2015 Plans," February 2, 2015, p. 2.

d. KLR Group: "The Shenandoah-3 appraisal, ~1,500' down dip and ~2.3 miles east of the Shenandoah-2 appraisal, did not encounter hydrocarbons though found ~1,470' of well-developed wet reservoir sands."[232]

e. Tuohy Brothers Energy: "GOM development continues apace with the non-pay Shenandoah result an aggressive delineation well that was fully within APC expectations."[233]

215. While Anadarko—consistent with its stated practice of declining to release resource ranges at early stages of the project given the amount of uncertainty in those ranges and the likelihood they would substantially change over the appraisal process—did not give out resource estimates, these reports make clear that analysts understood from Anadarko's and the Shenandoah Partners' statements that Shen-3 likely decreased the potential size of the resource.[234]

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[232] KLR Group, "KLR Morning Brief," February 3, 2015, p. 1 (LAZARD-ANADARKO_0030830).

[233] Tuohy Brothers Investment Research, Inc., "Tuohy Brothers Energy Note," February 3, 2015 (LAZARD-ANADARKO_0030861).

[234] I am aware that in a February 5, 2015 report, Jefferies stated, "In 3Q14 and 4Q14, APC announced results of the second and third Shenandoah appraisal well, both of which encountered more than 1,000 feet of net oil pay (as did the first appraisal well)." Jefferies, "Oil & Gas Exploration & Production Things Done Changed; Initiating on Oil & Gas E&Ps," February 5, 2015, p. 298 (ANADARK0_00000888). However, this report is clearly incorrect, as Anadarko (a) did not release any Shenandoah well results in 3Q14 and 4Q14, (b) had not released any results from the third Shenandoah appraisal well, i.e., Shen-4, which it had not even been spud, and (c) never suggested that it encountered 1,000 feet of net oil pay in three wells. It is also internally inconsistent, as it later says that "the Shenandoah #3 appraisal well is currently being drilled in a 1.5 mile down-dip step-out, and results are expected in early 2015." Jefferies, "Oil & Gas Exploration & Production Things Done Changed; Initiating on Oil & Gas E&Ps," February 5, 2015, p. 410 (ANADARK0_00000888). This pre-Class Period report, which has several clear errors, does not change my opinion that investors understood Shen-3 did not encounter oil. Indeed, Jeffries released a company note on Marathon Oil several weeks later acknowledging that Marathon had written of the "2nd Shenandoah appraisal," i.e., Shen-3. Jefferies, "Company Note: Marathon Oil: Balancing the Equation," February 20, 2015 (APC-01420615).

216. Investors also understood that Anadarko viewed Shen-3 as successful because it provided helpful information on the reservoir—not because it encountered hydrocarbons:

a. RBC: "Shenandoah 3 appraisal well was drilled, but unlike ConocoPhillips (COP), APC viewed the well as a success. APC never planned to use the well as a producer, but used it as a geologic step-out well to test the down-dip and find the oil-water contact."[235]

b. TPH: "Shenandoah-3 dry hole (E&P $569) -A clear negative for a field that was called potentially the biggest in the US GoM. 2nd appraisal well was spudded in late May and reported as dry yesterday by COP. Well was 2.5 miles east and down-dip from the Shenandoah-2 well, which encountered >1,000 net feet of high-quality oil pay, in the Lower Tertiary. Original 2009 well hit 300ft of net pay in the Wilcox. Still plans for a further appraisal well later this year. . . . APC is tendering for an 8th gen. 20k PSI, new-build rig for the Lower Tertiary for '18/'19 delivery – we suspect this may now get put on hold."[236]

c. TPH: "Shenandoah-3 appraisal update (E&P $577)- Our initial assessment on Friday of the Shenandoah-3 appraisal well likely too harsh as the primary intent of this 2.5 mile step out was to determine the oil water contact. While well helps define boundaries of the field, unlikely to diminish the enormous resource potential and quality of reservoir that Shenandoah represents. Expect more color over the coming days as companies report."[237]

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[235] RBC Capital Markets, "APC- 4Q14 EPS Miss, but strong operation CFPS beat," February 2, 2015, p. 1 (RBCCM00003437).

[236] Tudor Pickering Holt Energy, "Refiner thoughts; initial earnings takeaways," January 30, 2015, p. 2 (APC-00159003).

[237] Tudor Pickering Holt Energy, "Completion delays, Shenandoah-3 update, Natural gas production, Oil production, Oil refining weekly, Weekly rig," February 2, 2015, p. 1 (APC-00349727).

217. At least one article in Upstream Online, a leading energy news source, indicated that Anadarko viewed Shen-3 positively even though it did not encounter oil.

a. In a February 13, 2015 article, Upstream Online reported that Shen-3 "left many observers scratching their heads" as ConocoPhillips expensed the appraisal probe, which "[s]ome analysts took that to mean the well was a bust, but Anadarko executives cast it in a much more positive light."[238] The article then continued that Daniels had explained that they were "excited about what we are seeing there" because "the company wanted to gauge the sand continuity and possible down-dip thickening of the reservoir," "establish an oil-water contact" and "better understand the reservoir quality and potential recovery mechanism." [239] Quoting Daniels, the article noted, "If you look at the results, we really did all of that." [240] The article further noted, again quoting Daniels: "Daniels did acknowledge that recent results probably reduce the upper end of the aerial extent of Shenandoah, 'but it is not a very significant reduction.'" [241] The article further noted that any initial estimates about the Shenandoah basin would be doubtful because of "disappointing" appraisals at Coronado.

218. Analyst reports during the Class Period continue to reflect that investors understood that Shen-3 did not encounter hydrocarbons and that the resource range, which Anadarko did not provide, likely decreased.

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[238] Upstream Online, "Anadarko mulling over its options at Shenandoah," February 13, 2015, upstreamonline.com/weekly/anadarko-mulling-over-its-options-at-shenandoah/1-1-1009805.

[239] *Id.*

[240] *Id.*

[241] *Id.*

a. ITG: In speaking about Cobalt, ITG wrote: "The Shenandoah #3 appraisal well reached TD and encountered 'the same well-developed reservoir sands 1,500 feet downdip and 2.3 miles east of Shenandoah #2.' Notably, the release states, 'The well also enabled the projection of oil/water contacts based on pressure data and reduced the uncertainty of the resource range.' We interpret the sentence as meaning the well was drilled below the oil/water contact. While we are encouraged that the well confirms the continuity of high-quality reservoir, the failure to encounter a hydrocarbon column suggests a smaller (3P?) potential resource. A fourth appraisal well is expected to commence later in 2015."[242]

b. ITG: "APC's March 3 presentation helped resolve uncertainty around the Shenandoah development in the Gulf of Mexico. Partner CIA, in its Feb. 23 release, said the Shenandoah #3 appraisal well evaluated the same reservoir sands 1,500 feed town-dip and 2.3 miles east of Shenandoah #2. It went on to say it found an expanded geologic reservoir section and confirmed good reservoir qualities. The company made no mention, however, of hydrocarbons. The March 3, 2015, APC presentation (Slide 47) [i.e., Figure 14, above] resolved the matter, clearly positioning the well below the oil-water contact."[243]

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[242] ITG Investment Research, "Appraisal Drilling, Possible Farm-out Dominate 2015 Agenda," February 23, 2015, p.1 (FIAM-ANAD-006965).

[243] ITG Investment Research, Daily Top and Bottom Performers by Market Cap, March 6, 2015, p. 2 (FIAM-ANAD-006125).

c. UBS projected a resource range potential of 720 MMBoe, as compared to its pre-Shen-3 estimate of 800 MMBoe.[244]

d. UBS: "Following its 2013 discovery at the Shenandoah-2 appraisal well[,] . . . APC completed its second appraisal well (Shenandoah-3) during 4Q. The well enabled projection of preliminary oil/water contact, increasing confidence in the ultimate resource potential (though no resource range was provided)."[245]

e. UBS: "APC completed its second appraisal well (Shenandoah-3) during 4Q. The well enabled projection of preliminary oil/water contact, increasing confidence in the ultimate resource potential (though no resource range was provided)."[246]

219. **Conclusion E: Investors understood that, even after Shen-3, Anadarko and the partners needed to drill additional appraisal wells in order to understand the Shenandoah resource potential.**

220. Anadarko made several statements around the time that it released the results of the Shen-3 well that make clear that while the well provided important information, there was still substantial work to be done to understand the size and quality of the resource. For instance, as noted above, during a February 3, 2015 investor call, Kleckner stated that "from a[n] evaluation and scoping standpoint, the work is progressing very well" but that they had to

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[244] *Compare* UBS, "Anadarko Petroleum Corp.: Preview of Anadarko Petroleum's Analyst Day," February 24, 2014, p. 7, (UBS_0000555) *with* UBS, "Anadarko Petroleum Corp. Strong 2Q EPS/CFPS Beat; Raising Estimates on Higher 2015 Oil Production Guidance, July 29, 2015," p. 11, (UBS00015972)

[245] UBS, "Anadarko Petroleum Corp. Strong 1.Q CFPS Beat; Raises 20:15 Volume Guidance but Trims Capex Budget," May 5, 2015, p. 9 (UBS_0000791).

[246] UBS, "Anadarko Petroleum (Buy): Strong 2Q EPS/CFPS Beal; Raising Estimates on Higher 2015 Oil Production Guidance," July 29, 2015, pp. 6-8 (UBS00015972).

"wait to see what the results of the follow-on appraisal wells fully indicate for our resource size."[247]

221. Later, during an earnings call on May 5, 2015, Daniels noted that "there's an awful lot of work that's gone into defining what data we still need to get to that FID decision and the Shenandoah-4 is focused on really moving us and advancing us in that direction. I think we're planning on getting a core there in the oil column. We're going to be up dip to the 1,000-feet of pay that we had, and so that will really help with some of the modeling going forward."[248] Daniels emphasized that Anadarko was "looking at deliverability and connectivity," which "gives you a lot more confidence than in what your actual development plan should be, and how economic the field could be."[249] He stated that with both Shen-4 and Shen-5, Anadarko was "going to have a real step-up in [its] knowledge."[250] With that information and "the integration of the development teams doing the pre-development work, we're going to be in a very good position to make the call as to whether we want to advance towards the FID, do an additional appraisal well, whatever it may be, based on the results of these wells."[251] He noted that they were "looking for reservoir continuity," "fluid," and to "just really confirm the overall oil in place volumes that we have there, so that we can then really start rolling that into development planning."[252]

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[247] Anadarko Petroleum Corporation Q4 2014 Earnings Call Transcript, February 3, 2015, p. 8 (emphasis added).

[248] Anadarko Petroleum Corporation, Q1 2015 Earnings Call Transcript, May 5, 2015, p. 12.

[249] *Id.*

[250] *Id.*

[251] *Id.*

[252] *Id.*

222. Analysts commented that additional appraisal was required and that any additional development would depend on the results of the appraisal process:

a. Simmons & Company: "APC's appraisal well drilled increased confidence in identifying the development plan and water drive for recovery. Another appraisal well will be drilled later this year testing the eastern extent."[253]

b. UBS: "The company plans to spud a third appraisal well in 2015 to further delineate the areal extent of the discovery (UBSe720 MMBoe), after which it should be able to dictate the pace of development (implying production will likely not begin until 2019-20)."[254]

c. GMP: "Planning is under way for the third appraisal well, Shenandoah-4, which is anticipated to spud during Q2:15. The well is designed to confirm the lateral sand quality, continuity and stratigraphy of reservoirs found in Shenandoah-2, which encountered >1,000 net feet of oil pay in Lower Tertiary-aged reservoirs."[255]

223. In subsequent months, Anadarko continued to emphasize that Shenandoah was in the early stages of development. During a May 20, 2015 UBS Global Oil and Gas Conference, Gwin stated that there was "[n]ot a lot to add on Shenandoah today other than to mention we are drilling an appraisal well there and we continue to move that project toward development in the future. We have a high working interest across our portfolio. We've got seven facilities out here. By having that kind of breadth of facilities, by having good project development expertise and a strong exploration capability, the Gulf of Mexico becomes a

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[253] Simmons & Company, "Anadarko Petroleum Corp.: Q4 Earnings Review," February 4, 2015, p. 3 (PIPER_SANDLER-0003287).

[254] UBS, "Anadarko Petroleum Corp. Strong 1.Q CFPS Beat; Raises 20:15 Volume Guidance but Trims Capex Budget," May 5, 2015, p. 9 (UBS_0000791).

[255] GMP, "Anadarko Petroleum Corp. Q1:15 update: And the word of 2015 is 'Ephemeralization,'" May 5, 2015, p. 4 (FIAM-ANAD-008563).

place where our core skills create a competitive advantage, where we've been able to drive very profitable and increasing the oilier operations here over time."[256] Investors understood that Anadarko was working to appraise Shenandoah and develop its portfolio in the Gulf of Mexico.

224. Analysts understood that Shenandoah needed additional appraisal and technological development.

a. After the May 20, 2015 UBS call, Jefferies noted that "Shenandoah [d]evelopment" was "[u]nlikely [n]ear [t]erm, [b]ut [p]rovides [l]ong-[t]erm [p]otential," explaining, "While we believe Shenandoah could be one of the largest GOM discoveries, we currently give no credit in our RAAV due to needed improvements in drilling technology (new build drillships with dual 20k PSI BOPs), which are unlikely to be available in the near-term."[257]

b. Later, in July 2015, Capital One stated: "Appraisal drilling is ongoing in deepwater GOM, as APC is currently drilling its second well at Yeti (37.5% WI) and the fourth well at Shenandoah (APC 30% WI). Mgmt believes a 5th well will likely be required at Shenandoah to round out the appraisal process and get more visibility on the total recoverable resource."[258]

[256] Anadarko Petroleum Corporation, UBS Global Oil & Gas Conference Transcript, May 20, 2015, p. 6.

[257] Jefferies, "Oil & Gas Exploration & Production Reduce Nat Gas Price Outlook, Rema in Constructive; Upgrade APC, NBL, EOG," July 6, 2015, p. 6 (APC-01319911).

[258] Capital One, "APC Update," September 16, 2015, p. 2 (APC-01323978).

225. **Conclusion F: At several points throughout the Class Period, Anadarko disclosed that Shen-3 did not encounter hydrocarbons.**

226. Anadarko made several additional references throughout the Class Period to Shen-3 lacking hydrocarbons. During Anadarko's Q4 2015 Earnings Call, Anadarko stated that Shen-5 would be drilled "between Shenandoah 3 and the original Shenandoah 1, up dip of Shenandoah 3, which was a wet well that encountered very, very good sands, kind of gave us a down-dip limit on the eastern side."[259] Investors understood that describing a well as "wet" meant that the well did not encounter hydrocarbons.

227. Later, during a May 24, 2016 UBS Global Oil and Gas Conference (discussed in further detail below), Anadarko presented a graphic clearly showing that Shen-3 did not encounter hydrocarbons. In the cross-section, Shen-3 is listed as drilling into yellow, rather than the light or dark green that indicated "proven oil" or "projected oil," respectively.[260]

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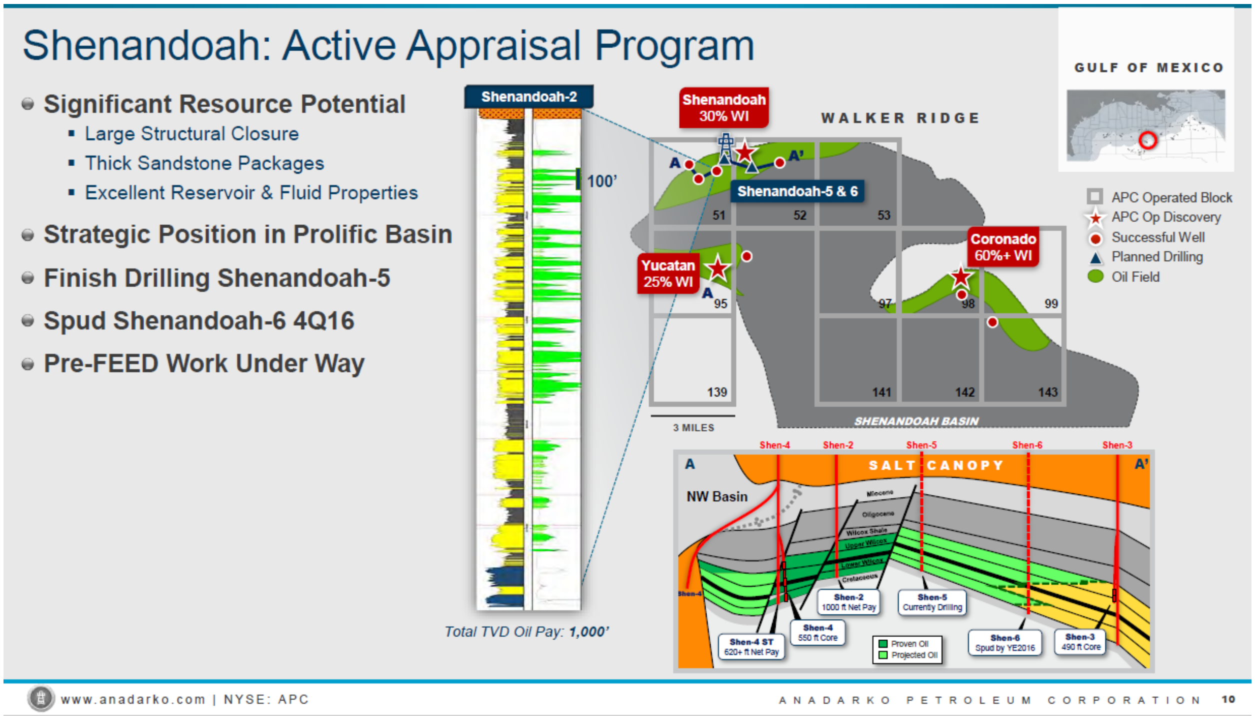
[259] Anadarko Petroleum Corporation, Q4 2015 Earnings Call Transcript, February 2, 2016, p. 10.

[260] Anadarko Petroleum Corporation, UBS Global Oil & Gas Conference Presentation, May 24, 2016, p. 10.

Figure 15. Slide from May 24, 2016 UBS Global Oil and Gas Conference[261]



228. By October 2016, Anadarko expensed Shen-3. Specifically, Anadarko announced that it had expensed, in October 2016, "$64 million related to a Shenandoah well in the Gulf of Mexico . . . as it was no longer reasonably possible that the wellbore would be used in the development of the project if a final investment decision is reached."[262] Given the timing of the write-off and public comments on Shen-4 and Shen-5, i.e., the fact they encountered significant amounts of oil, investors understood that this correlated to Shen-3. Investors understood that writing off Shen-3 as a dry hole further confirmed that it did not encounter oil and was no longer reasonably part of the development plan.

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[261] *Id.*

[262] Anadarko Petroleum Corporation, Q3 2016 10-Q, October 31, 2016, p. 11.

5.2.4. Allegations about Shen-4

5.2.4.1. Plaintiffs' Allegations

229. Plaintiffs allege that Defendants "exaggerated the findings associated with the Shen 4 appraisal well drilled in 2015, when in fact it was well known throughout the Company, including the management team, that the results were disastrous."[263] Plaintiffs further assert that Shen-4 "was 'garbage' and suffered major problems, including misleading mapping" and "salt deposits."[264]

230. Plaintiffs contend that Defendants "reiterated prior exaggerated estimates about the size and economic promise of Shenandoah."[265] For instance, they allege that Gwin "claimed that Shen 4 had identified even more oil, pushing the known depth of oil down by an additional 400 feet, stating that 'we didn't establish an oil water contact here, so that tells us there's more down below us' and 'we're very encouraged with what we saw, and it was well within the range of expectation of what we had put out there.'"[266] Similarly, Plaintiffs point to an October 28, 2015 statement allegedly from Walker "respond[ing] to a Deutsche Bank inquiry about Shenandoah's resource range and appraisal wells as follows: 'Yes, on the resource range, we're right where we thought. We always do a probabilistic resource range. We're still in that range with the results of the well.'"[267] Plaintiffs call the Shen-4 sidetrack well, which encountered 600+ feet of oil, "an objectively smaller resource than Shen 2. . . mandate[ing] a downward adjustment to Shenandoah's size estimates."[268] Plaintiffs further

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[263] Amended Complaint ¶ 53.

[264] *Id.* ¶¶ 54--55.

[265] *Id.* ¶ 59.

[266] *Id.* Plaintiffs incorrectly attribute this quote to Gwin.

[267] *Id.* ¶ 112. Plaintiffs incorrectly attribute this quote to Gwin.

[268] *Id.* ¶¶ 57-58.

allege that the original hole encountered "massive salt deposits (or faults) that blocked oil extraction," which Plaintiffs claim "mandated a reduction in the estimated size of the Shenandoah resource."[269]

231. Plaintiffs also take issue with positive statements Anadarko made about Shenandoah, including that it was moving the project "towards development in the future," [270] "[a]chiev[ing] large-scale project milestones in the Gulf of Mexico,"[271] and that "longer-dated projects [such as Shenandoah]" were "worthy of spending capital, expecting that oil [was] not going to be at $30 for the rest of our life."[272] Moreover, Plaintiffs contend that Anadarko "continued to tout the 'high quality' of Shen 4 without disclosing the use of outdated and misleading maps, and simultaneously touted plans to start drilling more wells to the East, dubbed Shen 5 and 'Shenandoah-6' ('Shen-6')." [273]

5.2.4.2. Summary of Conclusions:

232. **Conclusion A: Investors understood from Anadarko's statements that the original Shen-4 hole encountered salt and that the sidetrack encountered less pay than Shen-2.**

233. **Conclusion B: Investors did not view Defendants' statements about the Shen-4 results as confirming any particular resource range.**

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[269] *Id*. ¶ 55.

[270] *Id*. ¶ 106.

[271] *Id*. ¶ 107.

[272] *Id*. ¶ 114.

[273] *Id*. ¶ 70.

234. **Conclusion C: Investors understood after Shen-4 that any FID would depend on the information gathered from Shen-5 and Shen-6, as Anadarko needed to better understand the size and quality on the East side of the prospect.**

235. **Conclusion D: After the results of Shen-4 were released, investors understood that Anadarko was unlikely to invest in Shenandoah at then-prevailing oil prices.**

236. **Conclusion E: By no later than May 2016, investors understood that there was faulting in the Shenandoah basin, including faulting between Shen-2 and Shen-3, and between Shen-2 and Shen-4, which required Anadarko to continue drilling to understand the asset.**

5.2.4.3. Support for Conclusions:

237. **Conclusion A: Investors understood from Anadarko's statements that the original Shen-4 hole encountered salt and that the sidetrack encountered less pay than Shen-2.**

238. Plaintiffs contend that Shen-4 was "garbage" and had "disastrous" results because it encountered salt deposits, and was an "objectively smaller resource than Shen 2," which Defendants concealed.[274]

239. I am not aware of any statements from Anadarko claiming that Shen-4 and Shen-2 encountered similar net pay. Rather, it is undisputed that Anadarko released the results of both wells—that Shen-2 encountered at least 1,000 net feet of pay[275] and the first sidetrack

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[274] *Id.* ¶¶ 53–55, 57.

[275] *See, e.g.*, Anadarko Petroleum Corporation, Q1 2013 10-Q, May 6, 2013, p. 26.

at Shen-4 encountered 620 net feet of pay.[276] Investors thus understood that the Shen-4 sidetrack encountered less pay than Shen-2.

240. Investors also understood that the original Shen-4 hole encountered salt. Anadarko's public statements show that, while Anadarko often used the term "Shen-4" to refer to the entire series of penetrations, it disclosed that the net pay it encountered was from a sidetrack.[277] For example, during an earnings call on October 28, 2015, Daniels described the Shen-4 well results, saying that the original well "established where the basin edge was" and the sidetrack "got the 622 feet of pay."[278]

241. Just the day prior, Anadarko indicated in its Q3 2015 Operations Report that the original hole at Shen-4 was on the edge of the basin and salt.[279] Investors thus understood that the original hole, in establishing where the basin edge was, probably encountered salt.

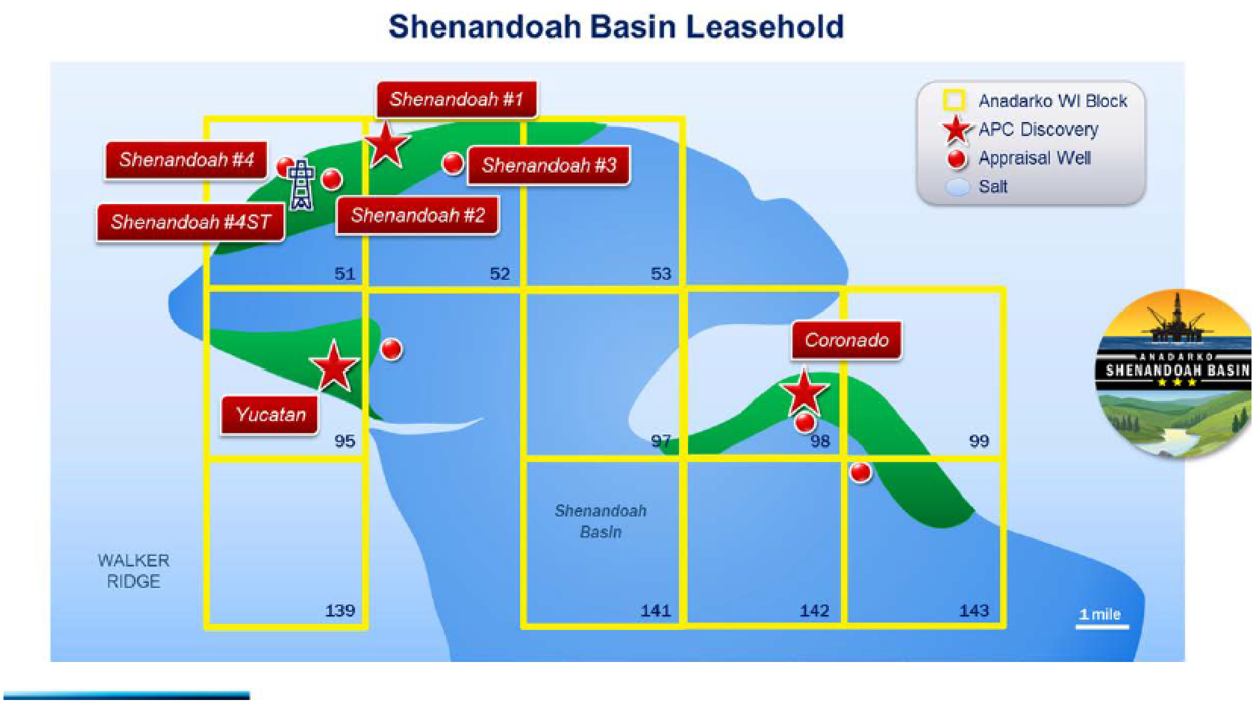
[276] Anadarko Petroleum Corporation, 2015 10-K, February 17, 2016, p. 10Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 7.

[277] Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 7.

[278] *Id.*

[279] Anadarko Petroleum Corporation, Q3 2015 Operations Report, October 27, 2015, p. 13.

Figure 16. Graphic from Anadarko's October 27, 2015 Operations Report[280]



242. The fact that Anadarko sidetracked the well also indicated that the original Shen-4 hole encountered salt. There are two common reasons for sidetracking a wellbore. If a bit or other downhole equipment becomes stuck in the wellbore and fishing is unsuccessful, a sidetrack allows drilling to continue around the obstruction without drilling an entirely new well. Similarly, if the wellbore encounters issues (faulting, etc.), a sidetrack allows the operator to use a portion of the initial wellbore, saving costs, then kicking out directionally so that the rest of the well deviates in the direction of what is hoped to be a more desirable target. Investors understood that the latter reason was at issue here, in light of Anadarko's statement that the original hole had "established where the basin edge was."[281]

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[280] *Id.*

[281] Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 7.

243. Later, during a May 24, 2016 UBS Global Oil and Gas Conference, Anadarko showed a graphic clearly indicating that Shen-4 drilled into the salt that bounded the reservoir to the west.[282] (See Figure 15, above.) Market participants circulated this image, with Morgan Stanley, for example, using this image in its report later that year.[283]

244. **Conclusion B: Investors did not view Defendants' statements about the Shen-4 results as confirming any particular resource range.**

245. Plaintiffs take issue with two statements that they claim "reiterated prior exaggerated estimates about the size and economic promise of Shenandoah."[284] As explained above, however, none of the statements that Plaintiffs contend constitute resource estimates would have been viewed as such. As a result, investors did not understand these additional allegedly misleading statements to be confirming any particular resource range.

246. The first allegedly misleading statement is a statement, which Plaintiffs attribute to Gwin saying Anadarko was "very encouraged with what [they] saw and it was well within the range of expectation of what [they] had put out there."[285] The exchange, in full context, proceeded as follows:

> Evan Calio, Morgan Stanley, Research Division: "[C]ongrats on the Shenandoah appraisal. Can you discuss how the results compare to predrill expectations or comments on reservoir quality and then go forward plans?"
>
> Daniels: "Yes, thanks, Evan, for the congratulations. The team is doing [a] really good job on that and we're real pleased with it. We got 622 feet of pay. What

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[282] Anadarko Petroleum Corporation, UBS Global Oil and Gas Conference Presentation, May 24, 2016, p. 10

[283] Morgan Stanley, "Notes From The Road: Top Pick Affirmation," October 11, 2016, p. 8 (MS_ANADARKO_000135).

[284] Amended Complaint ¶ 59.

[285] Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 7.

> we ended up doing was we tested up to the north with trying to find out where the basin edge was. And the first well -- established where the basin edge was. Then we came in and drilled to the south with the sidetrack and got the 622 feet of pay. It was all oil. We encountered no water in that. The reservoir quality in the initial assessment looks pretty -- well, looks comparable to everything else we found out. That's a very good reservoir quality. We're still in the early stages of that evaluation. We're in the process of getting a core, so we just kicked off and we're going to do a bypass core just right next to this well, and that's to establish the reservoir quality in the oil column, which will roll directly into our development planning. So it's very important to get that core and we're just in the process of it. So that's going to give us a much better handle on all fluid properties, all the reservoir properties. But we pushed the lowest known oil down about 400 feet. As I mentioned, we didn't establish an oil-water contact here, so that's -- tells us there's more down below us. And we're looking at what the forward plan is after this bypass core, as to what else we're going to need to turn over to the planning team for the development planning. But we're very encouraged with what we saw and it was well within the range of expectation of what we had put out there.” [286]

247. Investors understood the phrase “range of expectation” to refer to Anadarko’s objectives and expectations for the well, as established by and based on all of the information gathered pre-drill, including the Shen-3 results. In other words, investors did not compare this statement to the expectations after Shen-1 or Shen-2 alone. Other oil companies used similar terms such as “pre-drill expectations” to explain this concept. For instance, James H. Painter, Cobalt’s Executive Vice President, Execution and Appraisal, had noted that Shen-3 met “all of our pre-drill expectations,” explaining, “What we were looking for was looking to see what the down-dip sand quality was, the thickness, the capability about sand to produce, all of the things we were looking for were all met and what we were looking to accomplish with that appraisal well.” [287] Similarly, investors understood Daniels as

[286] *Id.*

[287] Cobalt International Energy Inc., Q4 2014 Earnings Call Transcript, February 23, 2015, p. 13.

confirming that Anadarko generally met their objectives and was pleased with the well results.

248. The second allegedly misleading statement is from Daniels saying that "[o]n the res[ource] range, we're right in where we thought. We always do a probabilistic resource range. We're still in that range with the results of the well."[288] Investors understand that in the appraisal process, companies often use a probabilistic resource range, which is updated as the company gains additional information about a resource. Investors understand that companies change their probabilistic resource ranges when they receive additional well data. Therefore, investors understood Daniels to be saying that Anadarko remained within the post-Shen-3/pre-Shen-4 resource range, i.e., the range at the time of drilling Shen-4. Investors did not understand Daniels's statement to mean that the range did not change at all or that Anadarko remained within the range as they had predicted it immediately after drilling Shen-1 or Shen-2.

249. In addition, immediately after saying that Anadarko was "right in where we thought" on a resource range, Daniels noted that they were still understanding the data: "We still have to establish to a water contact over here. So you still have uncertainties associated with that. As to FID and whether or not we need additional wells, I think these discussions are ongoing, but I think we also need to get all the data in and really incorporate that into our thinking as to, okay, what do we have here for sure, what we now have uncertainties around and what does that mean for additional activities." [289] He also cautioned that it was "too early to say on whether there needs to be an additional well" and that any "predevelopment work leading to an FID . . . would come after" Anadarko felt it had "all

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[288] Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015, p. 18.

[289] *Id.*

the data that [it] need[ed]."[290] In my review of market participant reactions to these statements in the 12 days following these disclosures, i.e., the time prior to Anadarko's next public presentation on November 11, 2015,[291] I did not identify any commentary referencing a resource range disclosed by Anadarko.

250. **Conclusion C: Investors understood after Shen-4 that any FID would depend on the information gathered from Shen-5 and Shen-6, as Anadarko needed to better understand the size and quality on the East side of the prospect.**

251. Investors understood that Anadarko needed to drill additional appraisal wells to understand the size of the Shenandoah field, and that any FID would depend on the information learned from Shen-5 and Shen-6. While Plaintiffs claim that Defendants "touted plans to start drilling more wells to the East,"[292] investors understood the need to drill more appraisal wells to mean that Anadarko and the other Shenandoah Partners did not have a sufficient understanding of the resource to make a final investment decision. Investors understood that appraisal wells require a significant capital investment and hold significant risk and may not ultimately lead to a final investment decision.

252. Anadarko made this clear to investors in the months after releasing the Shen-4 results. In particular, Anadarko repeatedly emphasized that it did not know the extent of resources on the eastern side of the prospect and needed to drill Shen-5, and potentially Shen-6, to gain this information. During a February 2, 2016 earnings call, Gwin said, "At the same time, we're looking at drilling Shenandoah 5. We think that's a well that's required. It's off to the East. It'd be kind of between Shenandoah 3 and the original Shenandoah 1, up dip of

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[290] *Id*. pp 18-19.

[291] Anadarko presented at the Jefferies Energy Conference on November 11, 2015.

[292] Amended Complaint ¶ 70.

Shenandoah 3, which was a wet well that encountered very, very good sands, kind of gave us a down-dip limit on the eastern side. So that well should spud here in this first quarter. We have high expectations for it. But we need to drill the well and say, that's what appraisal is all about. Meanwhile, the guys are taking all the information that we obtained from this, rolling it into conceptual planning as to what resources we may be able to recover, how much it might cost, those types of things. And as Al said, we're a long ways from sanction at this point. If Shenandoah 5 is successful, we may move even farther to the east with the Shenandoah 6, but of course, that'll be all dependent on what happens to Shenandoah 5."[293]

253. A few weeks later, on February 24, 2016, Daniels again emphasized the need for the Shen-5 results to prove hydrocarbons on the east side: "The Shenandoah Number 5 well will be drilled, and that'll be off to the east, again, trying to prove lateral extent, that kind of thing. We did appraise it last year. We had a successful well, 620 feet of pay in that. So, we still are advancing the project, but we're a ways away from a sanction at Shenandoah."[294]

254. As discussed in section 4.1.5, investors understood that the Gulf of Mexico was geologically complex, so the Shenandoah field may be faulted or may not have as large of an areal extent as initially hoped. Anadarko representatives repeatedly emphasized the lack of knowledge regarding the lateral extent of the eastern side of the field, indicating that there may be fewer or no hydrocarbons than expected in those areas, which could be attributable to faulting or compartmentalization.

255. Anadarko's partners made similarly cautious statements. For instance, Marathon Oil similarly cautioned that while Shen-4 provided "excellent" results, they were "still very

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[293] Anadarko Petroleum Corporation, Q4 2015 Earnings Call Transcript, February 2, 2016, p. 10.

[294] Anadarko Petroleum Corporation, Credit Suisse Energy Summit Transcript, February 24, 2016, p. 6.

much early in the appraisal phase" and had not "reached an investment decision."[295] It further recognized that doing so would require it to weigh the potential investment against others in its portfolio, stating, "Ultimately, it will need to compete for capital allocation head-to-head with the rest of our opportunities."[296] On February 22, 2016, Cobalt released its 2015 10-K which reiterated that the "Shenandoah field is in the early stages of the project development life-cycle and will require substantial additional evaluation, appraisal drilling, and analysis prior to the preparation of a development plan and seeking formal project sanction."[297]

256. **Conclusion D: After the results of Shen-4 were released, investors understood that Anadarko was unlikely to invest in Shenandoah at then-prevailing oil prices.**

257. In 2015 and early 2016, investors understood that while Anadarko was continuing to appraise the Shenandoah prospect to understand the potential field size, investing in Shenandoah would require higher oil prices to be commercialized.

258. During a February 2, 2016 earnings call, Anadarko discussed the macroeconomic environment. Walker began by highlighting the "uncertain price environment [they] anticipated as [they] entered 2015," during which oil prices ultimately "fell by almost 50%."[298] Walker emphasized that, as a company, Anadarko was working to put themselves in a position to "manage through the market's uncertainty and volatility" they predicted "in the coming years."[299] He indicated that unstable gas prices could cause them to sell

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[295] Marathon Oil Corporation, Q3 2015 Earnings Call Transcript, November 5, 2015, p. 11.

[296] *Id.*

[297] Cobalt International Energy Inc., 2015 10-K, February 22, 2016, p. 5.

[298] Anadarko Petroleum Corporation, Q4 2015 Earnings Call Transcript, February 2, 2016, p. 4.

[299] *Id.*

certain assets, as they would be "actively managing [their] portfolio this year and ha[d] other monetizations identified, which w[ould] be pursued through the course of the year."[300] Later during the call, Gwin emphasized that he thought the existing oil price environment would "probably be protracted," stating that "until we see events stabilize and we see oil prices, in particular, take on [a] new supply/demand dynamic than is currently in the market or anticipated in the near future, we will continue to be a very cautious investor in this environment. . . . So it's for those reasons that I think we're taking, again, this year and into '17 a very cautious approach."[301]

259. Investors understood that this economic environment would impact any decision to sanction Shenandoah. Walker cautioned that Anadarko would not sanction Shenandoah unless oil prices were higher, saying they were "not drilling with a view that we would develop Shenandoah in a $30 price environment."[302] He added, "[T]aking a final investment decision or sanctioning here is not something that will happen in 2016. . . . [W]hen we do, when we are looking at the commerciality of this particular development, it will be considered as a part of how we think about investing the capital in the development."[303] Walker acknowledged, however, that he felt Shenandoah and other long-term projects "today, are worthy of spending capital, expecting that oil is not going to be at $30 for the rest of our life."[304] He noted that any decision to sanction Shenandoah or other similar projects would require the Shenandoah Partners to "be in an environment which we believe

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[300] *Id*. p. 5.

[301] *Id*. p. 9.

[302] *Id*.

[303] *Id*.

[304] *Id*. p. 7.

we can recommend to our Board[s] first that we make that investment."[305] Investors understood this to mean there was significant uncertainty about whether to sanction Shenandoah.

260. Market commentary from around this period highlights the difficulties of investing in the region. In September 2015, Wood Mackenzie highlighted that "Final Investment Decision for the next round of Lower Tertiary projects depends on a number of key factors including: 1. Successful appraisal results (North Platte & Shenandoah); 2. development of HP/HT [high pressure and high temperature] equipment and; 3. confidence in a stronger oil price."[306] In a report from the following month, Wood Mackenzie noted that "[s]ustained low oil prices threaten viability of many key projects, which are a linchpin of growth for the region."[307]

261. Comments from analysts make clear that the market understood that the Shenandoah project had not been sanctioned and would not be sanctioned at then-prevailing oil prices.

a. MUFG: "The company's longer-term exploration and appraisal projects are still focused primarily on the Gulf of Mexico. The most-notable of these projects are the Shenandoah (30% WI, operator) and Yeti (37.5% WI, Statoil operator). Neither of those assets is likely to move into the development stage this year due to the low oil-price environment, in our view."[308]

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[305] *Id.*

[306] Wood Mackenzie, "The Lower Tertiary play in deepwater GoM: what's at stake?," September 2015, p. 7 (APC-00048674).

[307] Wood Mackenzie, "What might the future hold for oil prices?," October 2015, p. 32 (APC-00651990).

[308] MUFG, "Anadarko Earnings: Discipline, Monetizations to Bridge 2016 Funding Gap; Estimates Revised," February 2, 2016, pp. 2-3 (MUSA00000034).

b. Janus Henderson: "No plans to FID Shenandoah in a $30 price environment. Appraisal well results are good to date, same with Yeti in GOM."[309]

c. BMO: "Anadarko is unlikely to FID Shenandoah during 2016, a large project that is estimated to require 25 subsea trees (Quest expects trees to be awarded to FTI in 2018)."[310]

262. Anadarko continued to caution investors that it would not invest in projects like Shenandoah unless it saw sustained oil prices. In March 2016, Anadarko indicated that development would likely require more than $60 a barrel. Specifically, when asked about what oil prices would be necessary to develop in certain regions, Walker said,

> "There are other assets that would require greenfield infrastructure to be deployed in order to bring that into development that are probably going to require more than $60. So it really depends upon whether or not we can lever off existing infrastructure as part of the development plan or if we have to look for brand-new greenfield infrastructure in order to make that commercialization create an attractive rate of return. And when you have a mix of assets that we do and you think about, in particular, say, the DJ and the Delaware Basin w[h]ere we've made huge capital commitments to be able to control our infrastructure there, it's probably easier for us on the margin to convert things in the production than would be others that don't have the ability to lever that infrastructure. And the same thing is true on the Gulf of Mexico."[311]

263. Based on information Anadarko shared with the market, investors understood that Shenandoah would not be sanctioned if oil prices remained below $60 a barrel. One of

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[309] Janus Henderson, "APC: 4Q 15 EPS beat, mgmt commentary constructive on operations and capital management: Call Notes," February 2, 2016, p. 1(JanHen_00012764).

[310] BMO, "Crude Thoughts - E&P Budgets Not Looking Good For OSX," February 10, 2016, p. 1 (FIAM-ANAD-008673).

[311] Anadarko Petroleum Corporation, Guidance Update Call Transcript, March 1, 2016, p. 19.

Plaintiffs' investment managers, Wellington, noted that Shenandoah would not be developed until price of oil was at the $70/bbl level:

> "Anadarko (APC,1, $13.3B):
>
> • Don't think activity rises until oil is above $50 . . . what worries us about the macro is the volatility going forward
>
> • Don't see a price where we would increase activity in '16
>
> • Service industry is fragile... 80% of the workers in the 80s never returned and concerned about quality of crews... large customers like APC will have an advantage here as SLB/HAL have to rehire and retrain
>
> • Would look to start hedging above $40/bbl in 2H'16 and 2017 using 3 way collars
>
> • **Not developing greenfield deepwater project like Shenandoah in a $30-$40 world... thinks you need north of $70**[312]

Another Wellington employee noted:

> Depending on contract structure and tax regime of the specific geography, some offshore projects can work in the $40s if the geology is good and the project can tie into/amortize existing infrastructure. However, **Anadarko noted that even its large Shenandoah find in the GOM would need $70 oil to justify greenfield economics. Offshore will be challenged for some time, even if the price rebounds above $60-70, because of a prevailing attitude that prices and industry structure are more "fragile" than they used to be.** This comment might be different if I were speaking to majors, but independents are clearly concerned that the new volatility means prices three years out are a total crapshoot, which makes it tough to sanction multi-year deep water developments."[313]

[312] Email from M. Vivano, Wellington Management, re: "HW Conf Takeaways for energy," March 24, 2016, p. 7, (WMC-APC-0000646) (emphasis added).

[313] Email from D. Palmer, Wellington Management, re: "HW Conf Takeaways for energy," March 23, 2016, p. 8, (WMC-APC-0000646) (emphasis added).

264. **Conclusion E: By no later than May 2016, investors understood that there was faulting in the Shenandoah basin, including faults between Shen-2 and Shen-3, and between Shen-2 and Shen-4, which required Anadarko to continue drilling to understand the asset.**

265. On May 3, 2016, Anadarko discussed faulting that it had encountered in the Shenandoah basin. While Plaintiffs contend Daniels misled the public in saying they were "not necessarily . . . seeing lots of bad surprises,"[314] the exchange in which he said this reveals that he disclosed potential faulting and compartmentalization, which was delaying their plans to drill additional appraisal wells:

> Douglas George Blyth Leggate, BofA Merrill Lynch: "Okay. My operational follow-up is actually on Shenandoah. . . . So I'm wondering what your thoughts are there . . . when it comes to . . . the fact that we're now 5 appraisal wells in. What are you seeing there that is taking so long to appraise it, if you like? Is it really just scale, something unique to the reservoir that may make it a little bit more challenging to get a sanctioned [ph] decision?" . . .
>
> Daniels: "Yes. Doug, on the wells and the appraisal program, it's partly scale, it's partly -- some of the complexities that we're seeing out there, mostly on the imaging side of it, not necessarily that we're seeing lots of bad surprises. Although we did, through our most recent wells, realize that there are some faults that were poorly to not imaged in some of the seismic data that we're going to have to build into a potential development plan. And so that means that we needed a few more appraisal wells to make sure that there's not any more compartmentalization as we move across. So those are the issues that we're looking at. I'd say it's mostly based around the quality of the image in the sub-salt and making sure that what we're seeing or interpreting is actual reality, and so we're drilling the 5-well now to the west and pushing that downdip quite significantly to prove up of those volumes as we move over. And then with success there, we'd move over even farther to the -- I'm sorry, to the east, and we'd move over even farther to the east with the #6 well. So those are what's happening there. The biggest issue on timing and making sure that we have the data is -- this can be a big development if we move forward with it. And it's

[314] Amended Complaint ¶ 121.

going to be an expensive development and you want to know what the well deliverabilities are going to be, what your actual resources range are going to and you want to come up with a solution that actually makes sense for this resource. And it's in a technically challenging environment from a pressure standpoint. So we have to make sure we get it right before we take those final decisions. So that's kind of what we're working on right now."[315]

266. Around this time, Cobalt also expressed caution about the Shenandoah resource size, stating it was not as good as their other assets. During Cobalt's earnings call, Cobalt's CEO Joseph Bryant said that Cobalt "probably would want to spend [their] limited capital over the next several years on [their] – either operated asset like North Platte or in assets that [they felt] pretty good about in Anchor before . . .spend[ing] incremental capital at Shenandoah."[316] He further explained that they did not want to "expose [them]selves" by bidding on Marathon's portion of the field, as that could lead to "a position where [they] couldn't spend that capital on assets that [they] would rank higher than Shenandoah."[317] When asked about how he would "rank the resource size in North Platte, Anchor, Shenandoah from 1 to 3," Bryant responded that "based on what we see today," Cobalt would rank Shenandoah last.[318]

267. Market participants understood that Shenandoah required additional appraisal in part because Anadarko had encountered faulting.

a. Morgan Stanley: "**CIE and APC highlight Shenandoah risks, development hurdles.** APC started off the day's commentary disclosing that the recent appraisals uncovered some faulting at Shenandoah that was not originally visible on seismic. APC will have

[315] Anadarko Petroleum Corporation, Q1 2016 Earnings Call Transcript, May 3, 2016, p. 8.

[316] Cobalt International Energy Inc., Q1 2016 Earnings Call Transcript, May 3, 2016, p. 10

[317] *Id.*

[318] *Id.*

to adjust for faulting in the development plan. APC – *'need[s] a few more appraisal wells to make sure that there's not any more compartmentalization as we move across.'* The faulting adds need for additional appraisals and is likely why APC decided to keep the Shenandoah program with its exploration team (last year talked about transferring it to development team after the first of the two wells to be drilled this year) and why it recently mentioned needing an additional appraisal to be drilled next year (Shenandoah-7). Beyond faulting, high reservoir pressure and associated need for 20kpsi equipment (which industry is in the process of standardizing) add to the development challenges."[319]

b. JP Morgan: "**Challenges at Shenandoah.** APC's appraisal program at its Shenandoah discovery continues, with Shenandoah-5 well currently drilling. APC indicated there is some apparent faulting in the structure that wasn't encountered in the seismic. As a result, the company plans to drill more appraisal wells to make sure there is not additional compartmentalization across the field. While APC is contemplating the exercise of its preferential rights for MRO's 10% stake, it appears that the company would not be interested in materially increasing its stake in the project without additional information, which we view as a negative. As a reminder, we do not give value for Shenandoah in our NAV given uncertainty around the project."[320]

268. Moreover, Plaintiffs' investment managers were clearly aware of Shenandoah's complex structural properties and appraisal uncertainties:

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[319] Morgan Stanley, "Cobalt International Energy Inc: Headwinds Accumulate," May 3, 2016, p. 2 (FIAM-ANAD-003626).

[320] JP Morgan, "More Positives Than Negatives, But a Few Chinks in the Armor," May 4, 2016, p. 1 (APC-01328858).

a. Fidelity: In an email from Jefferies to Fidelity discussing the investment proposition of ConocoPhillips, Jefferies noted that "[ConocoPhillips's] deep-water portfolio is somewhat speculative at the moment. MRO demonstrated that the value of Shenandoah is not compelling."[321]

b. Janus Henderson (in call notes): "Additional appraisal wells needed at Shenandoah d[ue] to some poor seismic imaging. Doesn't necessarily mean the reservoir is bad, but it could me[an] more complex than perceived. Because this could be a big scale development, they don't want to cut corners before they make final decisions. Doesn't sound like they would buy COP's stake in Shenandoah without further drilling data."[322]

c. Wellington: "**Shenandoah:** incremental data point a negative in our view and need to dig further as the company mentioned updated seismic control, highlighting additional faulting/compartmentalization risk. This is why the company has prudently pushed an aggressive appraisal program to make sure they understand development plans. … Shenandoah: lots of complexity related to imaging which has caused delay, in a technically challenging pressure environment but think it will be a big development - not interested in adding to working interest position without having additional information first."[323]

d. Janus Henderson also understood as early as in May 2016 that "Long cycle assets such as Shenandoah would not be sanctioned in at $30/bbl world."[324]

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[321] Email from J. Gammel, Jefferies, to S. Gupta, Fidelity, April 25, 2016, p. 2 (FIAM-ANAD-003586).

[322] Email from N. Barrett, Janus Henderson, to Equity Research, May 3, 2016, p. 1 (JanHen_00012827).

[323] Email from W. Foley of Wellington to RK Hoffman of Wellington, etc., May 3, 2016, pp. 1-2 (WMC-APC-0000127).

[324] Email from A. Wiley, Factset, to V. Newman, Perkins Janus, May 3, 2016, p. 1, (JanHen_00013193).

e. Janus Henderson also understood that Shenandoah would not be sanctioned at that time because Anadarko had not "sized the reservoir yet" and was "still drilling a few more wells to gather data."[325]

f. Janus Henderson understood that there had not been a final decision to commercialize Shenandoah during the Class Period, and that the cost to drill appraisal wells was "higher than anticipated because of complexities associated with drilling in that location."[326]

269. During a May 24, 2016 UBS Global Oil and Gas Conference, Anadarko again indicated that Shenandoah had encountered faulting. (See Figure 15, above.) Investors understood from this graphic—which as indicated above also showed that Shen-3 did not encounter oil and that the original Shen-4 wellbore drilled into salt—that there was faulting in Shenandoah, including a fault between Shen-2 and Shen-3, as well as between Shen-2 and Shen-4.[327]

5.2.5. Allegations about Shen-5

5.2.5.1. *Plaintiffs' allegations:*

270. Plaintiffs allege that Defendants made false and misleading statements about the results of the Shen-5 appraisal well, both during and soon after drilling. Plaintiffs suggest that Defendants knew Shenandoah would not be commercialized yet "touted plans to start drilling more wells to the East, dubbed Shen 5 and [Shen-6]."[328]

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[325] Janus, "Morgan Stanley E&P & Oil Services Conference Notes," May 12, 2016, p. 2, (JanHen_00020308).

[326] Declaration of N. Barrett, Janus Henderson ¶ 6.

[327] Anadarko Petroleum Corporation, UBS Global Oil & Gas Conference Presentation, May 24, 2016, p. 10.

[328] Amended Complaint ¶ 70.

271. Plaintiffs allege that Anadarko made several false and misleading statements about Shen-5 as it was being drilled. These include statements made by Gwin and Shandell Szabo, Investor Relations Director, during a May 24, 2016 UBS Global Oil and Gas Conference. Gwin and Szabo stated that Shenandoah was a "fantastic basin," they were "excited about the upside and the potential here as [they] move[d] toward development," and that Shenandoah was "the finest lower tertiary discovery to date in the Gulf of Mexico" because of its thickness, area and recovery factor.[329] Plaintiffs allege that Defendants "continued to tout the economics of the Shenandoah project, with Gwin stating on May 24, 2016: '[Y]ou'd be very excited to take [final investment decision ('FID') in Shenandoah], knowing that the rates of return here would be compelling . . . . I'll call it not just that break-even number, but the number at which you'd really be excited about sanctioning and moving the project forward continues to come down with success. So Shen 5 is a material derisking of what we're doing."[330]

272. Plaintiffs also take issue with statements from Gwin during a June 28, 2016 J.P. Morgan Energy Investor Conference. He stated that Shen-5, "at least in the uphol[e] sections, . . . looked a lot like Shenandoah #2," and that "the results of Shen-5 ha[d] put [Anadarko] in a position where [they] clearly expect[ed] to drill Shen-6 later this year and continue with an appraisal program there beginning – continuing to frame the aerial extent of the reservoir."[331] Gwin continued, "Clearly, we know we have a lot of column. We know we have very attractive Miocene-like sands and now we need to determine the aerial extent of

[329] *Id.* ¶ 124.

[330] *Id.* ¶ 59.

[331] *Id.* ¶ 127.

the reservoir, so that we can move forward with our pre-[FEED] work and begin to conceptualize what a development opportunity would look like here." [332]

273. Plaintiffs point to Anadarko's July 2016 announcement that the Shen-5 well "encountered more than 1,040 net feet of oil pay, extending the eastern limits of the field,"[333] as well as Walker's general statements that Anadarko's "portfolio continue[d] to perform exceptionally well," and that the company "continued to significantly reduce [its] cost structure throughout the year,"[334] had "outstanding performance in the Gulf of Mexico," and was "pleased with what [they] saw in the number 5 well."[335]

274. Plaintiffs also take issue with the statements Defendants made after the announcement of the Shen-5 results, including Brad Holly's statement during an August 16, 2016 EnerCom Oil & Gas Conference that the "partnership is excited about Shenandoah" [336] and Gwin's statements at a September 14, 2016 UBS Houston Energy Bus-Less Tour that "we've still got an opportunity at Shenandoah we're excited about."[337]

275. Finally, Plaintiffs point to a statement from Walker during a November 1, 2016 Earnings Call that "there could be a role that Shenandoah or another option like that plays in our portfolio."[338]

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[332] *Id.* ¶¶ 127-129.

[333] *Id.* ¶ 129; Anadarko Petroleum Corporation, Q2 2016 10-Q, July 26, 2016.

[334] Amended Complaint ¶ 131.

[335] *Id.* ¶¶ 132-133.

[336] *Id.* ¶¶ 134-135.

[337] *Id.*

[338] *Id.* ¶ 136.

5.2.5.2. Summary of Conclusions:

276. **Conclusion A: Investors understood that after Shen-5, any FID would depend on the results of Shen-6, the ability to reduce development costs, and commodity prices.**

277. **Conclusion B: Investors understood in late 2016 and early 2017, as Anadarko discussed potential development solutions for Shenandoah, that the prospect would not be developed in the existing economic environment.**

5.2.5.3. Support for Conclusions:

278. **Conclusion A: Investors understood that after Shen-5, any FID would depend on the results of Shen-6, the ability to reduce development costs, and commodity prices.**

279. Anadarko representatives made several statements about Shen-5 before officially announcing the results of the well. Investors understood that Shen-5—which ultimately encountered more net pay than the Shen-2 well—was a promising development. However, investors also understood that Anadarko both needed to gain additional information about the resource and reduce development costs, particularly in light of then-prevailing oil prices, before making an investment decision.

280. During the May 24, 2016 UBS Global Oil and Gas Conference, Szabo explained that "the Number 6 well was very dependent on what we saw on the Number 5 well."[339] She continued that, because of the positive results of Shen-5, "what we can say is that we're definitely drilling the Number 6 well."[340] Szabo also made clear that any development would depend on whether Shen-6 encountered the oil-water contact. When asked if Shen-

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[339] Anadarko Petroleum Corporation, UBS Global Oil and Gas Conference Transcript, May 24, 2016, p. 9.

[340] *Id*. p. 9.

6 would allow them to "determine the size and move towards FID," Szabo responded that without the oil-water contact, "that's really hard for us to be able to say exactly with the ranges."[341] She added that, if they did not find the oil-water contact, "there's the opportunity for one more wellbore" that they might be "forced to drill."[342]

281. Gwin echoed this when it came to development cost, saying he could not provide an oil price that would allow Anadarko to develop Shenandoah, as they "have to understand the reservoir characteristics better than we do today."[343] During that conference, Gwin declined to provide a definitive oil price and resource size that would lead to a FID and did not promise that they would invest at that time:

> Question: "So how low an oil price could you move forward with Shenandoah? And then also with the Number 6 well, I guess, that spuds in the fourth quarter. If you find oil-water contact, will that be enough to determine the size and move towards FID, if you have any coming out today?"
>
> Gwin: "I can't answer your question on development cost. I can give you some conceptual comments. . . . But, first, we have to know what it is we're developing. And so, first, we have to understand the reservoir characteristics better than we do today. . . . But as we work the Shen-5 information into our model, it's going to change the scope of the development very clearly and it will change where we go with the development from maybe a design standpoint and certainly a scale standpoint. And so, it's a question we have avoided answering because we really don't want to get numbers in people's minds until we know what a development plan actually looks like. What we can tell you is that everything we've been doing brings that number down at which you'd be very excited to take FID knowing that the rates of return here would be compelling. And so, that – I'll call it not just that breakeven number, but the number at which you'd really be excited about sanctioning and moving the project forward, continues to come down with success. So Shen-5 is a material

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[341] *Id.* p. 11.

[342] *Id.* p. 12.

[343] *Id.*

de-risking of what we're doing. It's also going to be a significant amount of information to work into our models and the work that our engineers are doing around what that development solution looks like.

The goal here is to do it as efficiently as possible to get the best risk-adjusted rates of return. The more we learn, the more well control we have through the wells that are currently being drilled and the to-be drilled well, the more insight we'll have and the better we can answer the question sooner. But today, we just don't know."[344]

282. Analysts understood that while Shen-5 was a promising well, Anadarko and the Shenandoah Partners would be required to gather more information before making a decision on sanctioning.

a. UBS: "[Anadarko] highlighted its Shenandoah discovery is the 'finest lower tertiary discovery to date' (due lo thickness, reservoir quality, light oil, etc.) and plans to spud the Shenandoah-6 appraisal well in 4Q16 in order to establish oil-water contact which would give indication of true resource size; while Shenandoah-5 is approaching TD, the preliminary logs seem to be similarly encouraging as Shenandoah-2 in terms of thickness (~1,000 feet) and reservoir quality (Miocene-like)."[345]

b. Wolfe Research: "Anadarko with an update on Shenandoah - We thought commentary on Shenandoah about the necessity of additional appraisal wells to better define any additional compartmentalization on APC's 1Q16 conference call, following divestiture by Marathon of its 10% stake for what we thought a low price, was perceived net bearishly by the street, which in general is just hoping to get to the point of discussion around potential development options to better define future value from the discovery.

[344] *Id*. pp. 11-12.

[345] UBS, "UBS Global Oil and Gas Conference- DAY 1 Research Highlights," May 24, 2016, p. 2 (JanHen_00022609).

At the point of the 1Q16 call the company was drilling the Shenandoah-5 appraisal and pushing down-dip significantly to prove up volumes. APC effectively confirmed success at the Shenandoah-5 appraisal at a conference last week, with the company stating that it will now spud the Shenandoah-6 appraisal to the east in 4Q16. The Shenandoah-6 well will be pushing further down the structure to define the point of oil-water contact."[346]

c. Jefferies: "While APC didn't go as far as to reveal results for its operated Shenandoah #5 well (as it nears TD), the company stated that the data seen is likely to confirm previous thoughts on size and scale of the discovery. APC confirmed that the previously planned sixth well will definitely go forward (spuds in 4Q16), with the goal of the well to find the oil/water contact point. APC has also exercised its preferential right to purchase additional interest in Shenandoah (due to MRO's announced sale of its interest in the asset)."[347]

d. Bank of America: "[D]iscussion with management around its flagship Shenandoah discovery in the US GoM that has yet to receive sanction, suggests many investors have at least haircut and sometimes zeroed associated value, with similar treatment of other unsanctioned projects such as Paon in Ghana. . . . In March 2013, Anadarko announced the result of an appraisal well at its Shenandoah discovery. . . . Since then, another four wells had been drilled, revealing the structure to be large, but faulted with sub-salt imaging difficulties slowing management's ability to determine commerciality without further appraisal drilling. With completion of the #5 well, our discussions with

[346] Wolfe Research, "Large-Cap E&P: Target Depth - Royals and Yoga ... Nope," May 31, 2016, p. 6 (WOLFE_0003742).

[347] Jefferies, "Anadarko Petroleum (APC) Thoughts from Investor Meetings; Capital Efficient Hub and Spoke Model," June 1, 2016, p. 1 (JEFF00007322).

management suggest that Shenandoah is now back on the front burner and potentially the next major development in the US GoM. While additional appraisal drilling will continue with Shenandoah #6 expected towards year end, where the objective is to determine an oil water contact helping close in on the discoveries ultimate scale that we believe still lies between 500mm and 1 bn boe. . . . We base our assessment of Shenandoah in the lower half of our resource estimate at about 750mm boe. . . . Our commodity assumptions are consistent with our house view that assumes Brent pricing of $80 from 2019. While we acknowledge this may be premature we also believe Anadarko is closing in on a commercial development of what it has already described as one of the largest discovery in the US Gulf of Mexico. As a minimum we suggest that management's recent commentary suggests the value is certainly not zero—but our discussions with many investors around the extended appraisal time line leads us to believe that associated value has either been haircut or zeroed in many analysts models."[348]

283. Around this time, Anadarko continued to emphasize that any development would depend not only on the results of the appraisal wells but also the price of oil and potential development costs. For instance, during a J.P. Morgan Energy Equity Investor Conference on June 28, 2016, Gwin responded to a question about a price range for oil needed to make deepwater drilling "economically viable." Gwin stated that the answer "varies with the opportunity." [349] However, he continued, "Something like a Shenandoah is obviously a tremendous resource potential. But the development plan could be from a relatively smaller spar opportunity to maybe multiple spars to something bigger that you might pursue,

[348] Bank of America Merrill Lynch, "Anadarko Petroleum Corp. Tales from the road: the case for regaining the valuation premium: raising PO to $95," June 21, 2016, pp. 6, 11 (APC-01329468).

[349] Anadarko Petroleum Corporation, J.P. Morgan Energy Equity Investor Conference Transcript, June 28, 2016, p. 9.

because we have Coronado and Yucatan at the same mini basin that are tremendous kind of in situ tieback opportunities for the future." He further stated that while at "recent oil prices . . . you are starting to look economic to something that's in that PV-10 breakeven standpoint, but obviously you wouldn't pursue economics in the Gulf of Mexico for a 10% rate of return. We have to focus on risk adjusted rates of return, and accordingly, we're going to have to see something at a higher commodity price."[350]

284. Investors understood that development of Shenandoah would be challenged in the then-current environment. Companies are expected to only take on value-adding projects, meaning that the investment is expected to have positive net present value. It is also common for companies to have a target rate of return, *i.e.*, a hurdle rate, and would consider proceeding with an investment only when the expected rate of the return from the investment is higher than the hurdle rate. Given the significant risks of deep-water exploration, companies typically look for high expected returns, well beyond the breakeven point. In my experience, they might require returns of 20-to-25 percent or more. The Oil & Gas journal reports hurdle rates for deepwater oil of 18 percent,[351] and Wood Mackenzie indicates internal rates of return of 15 percent.[352]

285. Investors understood that multiple factors affect the expected rate of return and, accordingly, the development plan. These factors include (i) estimated recoverable volumes of hydrocarbons, (ii) projected commodity prices over timeframes as long as 20 years, (iii) the time frames for both incurring capital expenditures and production factors that affect present value, (iv) costs of production facilities (the FEED study attempts to reduce

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[350] *Id.*

[351] Conglin Xu, "Change in risk preferences," Oil & Gas Journal, February 4, 2019, https://www.ogj.com/pipelines-transportation/lng/article/17222710/change-in-risk-preferences.

[352] Wood Mackenzie, "The Rising Hurdles for Investment in Upstream," April 30, 2021.

these costs), and (v) alternatives for APC capital. Investors thus understood that even if Shenandoah offers potential economic promise, another project could be prioritized ahead of Shenandoah in Anadarko's capital-expenditure hierarchy.

286. After Anadarko announced the results of Shen-5 in late July 2016, it continued to make clear that they needed additional information from Shen-6—including that Shen-6 needed to encounter the oil-water contact—before making any decisions.

287. On the July 27, 2016 earnings call, Gwin discussed the results of Shen-5, but stated that the company was still in "the appraisal mode" and needed "to get the rest of the information in front of [them]":

> "With your question of what else it's going to take, we really have to see what the #6 tells us. If the #6 comes in as we project with the oil-water contacts, we'll probably need to then do a sidetrack out of that, try to go up dip, get in a full oil column in that. And -- so the ultimate planning has to be after #6. We've got a lot of work that's going on right now though related to how we might develop this field. But again, we're still in the appraisal mode, and so we need to get the rest of the information in front of us."[353]

288. During that call, Evan Calio, a Morgan Stanley research analyst, asked about Anadarko's investment in Shenandoah immediately after discussing with Walker how high oil prices could impact development in another region.[354] Walker and Hollek made clear that Anadarko was still appraising Shenandoah and that it was concerned about development costs, but that it was hopeful that advances in technology could improve the prospects. The exchange went as follows:

> Calio: "Moving offshore, which also [dove]tails, I think, with your oil price outlook. You reported positive appraisal results in Shenandoah-5 with 6

[353] Anadarko Petroleum Corporation, Q2 2016 Earnings Call Transcript, July 27, 2016, pp. 6-7.

[354] *Id.* p. 6.

> upcoming. I mean, post 6, what else do you need here to reach FID, either from appraisal or technical information gathered or from an oil price environment to again to get FID?"
>
> Gwin: "Yes, Evan, we were real pleased with what we saw in the #5 well. Not surprised, but we were very pleased to see it come in as we had predicted it would; 1,040-plus feet of pay. We're about 0.5 mile east of the #2 well, and then we're going to move farther east and down dip with the #6. With your question of what else it's going to take, we really have to see what the #6 tells us. If the #6 comes in as we project with the oil-water contacts, we'll probably need to then do a sidetrack out of that, try to go up dip, get in a full oil column in that. And -- so the ultimate planning has to be after #6. We've got a lot of work that's going on right now though related to how we might develop this field. But again, we're still in the appraisal mode, and so we need to get the rest of the information in front of us…."
>
> Calio: "Yes. I was just going to say -- I was just trying to understand. It sounds like it's a longer-term project as it fits in your portfolio as you -- lots of invested capital and now a 33% interest. Is that kind of the right way to think about when this -- when you're developing here? I know it's obviously past dependent on appraisal information?"
>
> Hollek: "Well, I think all things Bob just gave you are going to be kind of ingredients. That's going to be important to understand. I'd point to Mad Dog, which I believe BP has publicly discussed the fact they're going to take a decision on this year, and they've indicated that sanctioning is likely. And I think there's just a couple of takeaways from that, not necessarily that they're related to Shenandoah. One is they reduced the production solution cost from $20 billion to $8 billion, so that helps with the economics. And two, they think they've got an estimated ultimate recovery that's pretty significant. And so the EUR combined with a lower cost probably gives you a threshold for price that would not have been anticipated a few years ago for sanctioning. So we're hopeful that some of those ingredients will work into our favor as that decision comes to us over the next couple of years."[355]

289. Market participants understood after the results of Shen-5 were released that the true size of Shenandoah was unknown at the time and further appraisal was needed before

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[355] Anadarko Petroleum Corporation, Anadarko Q2 2016 Earnings Call Transcript, July 27, 2016, pp. 6-7.

Anadarko would make an investment decision. They also were aware that any investment would depend on the costs of development and commodity prices.

a. Citi: "Results from the Shenandoah-5 appraisal well . . . that spud during Q1'16 are likely to be disclosed and could help to confirm and extend the reservoir's boundaries. Mgmt. believes that a sixth Shenandoah well on the reservoir's eastern edge is needed before it can reach a FID."[356]

b. JP Morgan: "The Shenandoah-5 appraisal well encountered 1,040 net feet of pay, which was similar to the Shenandoah-2 well. The company also raised its interest in the project to 33% by participating in a preferential-rights process. APC should spud Shenandoah-6 later in '16, with hopes of moving the project into the development queue."[357]

c. Cowen: "In regards to APC's Gulf of Mexico acreage, Shenandoah continues to be the catalyst for growth going forward. The company increased its working interest in the play to 33% and grew its portfolio through a preferential-rights process that is expected to add significant upside. Anadarko continues to appraise the resource potential of this acreage and should spud its 6th well test by year-end."[358]

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[356] Citi, "E&P Second Quarter 2016 Earnings Preview," July 15, 2016, p. 31 (CITI005249).

[357] JP Morgan, "Anadarko Petroleum U.S. Onshore Strength Outweighs Known Production Hiccup at Jubilee; Stock Reaction - Positive – ALERT," July 26, 2016, p. 2 (JPMS 000361).

[358] Cowen and Company, "Anadarko Petroleum Corporation 2Q16 Earnings Review: Prepared for $60/bbl," July 27, 2016, p. 3 (ANADARKO_00000113).

d. Societe Generale: "In the GOM, APC purchased MRO's working interest in Shenandoah (so now 33%), and announced 1,040' of net oil play in the #5 appraisal well. A sixth Shenandoah well should spud by year end to seek the oil water contact."[359]

e. Raymond James: "In addition to current production opportunities, Anadarko continues to impress in the exploration department, as the company encountered more than 1,040 net feet of oil pay at the Shenandoah-5 appraisal well. While the company has not yet released a resource estimate, we would anticipate such an estimate following the upcoming sixth appraisal well."[360]

f. Goldman Sachs: "Shenandoah appraisal favorable. While Shenandoah startup remains years away, a 1K'+ oil column and lack of establishing oil-water contact seen in the fifth appraisal well (testing eastern portion) are positive."[361]

g. Wolfe Research: "Shenandoah getting to development? - Massive Gulf of Mexico discovery Shenandoah-5, which was meant to test for oil-water contact at the eastern limit of the field, ended up encountering 1,040 net feet of pay, which drove the decision to spud the -6 appraisal well vs testing eastern extent and quantifying full resource potential. We think a decision around plans will come shortly after -6 results are evaluated."[362]

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[359] Societe Generale, "Anadarko Petroleum Corp Cost effective volume delivery. Adjusted 2Q16 loss less than forecast. FY16 volume target +0.7%," July 27, 2016, p. 1 (APC-01329989).

[360] Raymond James, "Anadarko Beats on Strong Pricing; Gulf of Mexico Impresses," July 27, 2016, p. 1 (APC-01329989).

[361] Goldman Sachs, "Anadarko Petroleum Corp. (APC) Execution, asset sales should help allay Street concerns; Buy," July 27, 2016, p. 1 (GS-002562).

[362] Wolfe Research, "ANADARKO PETROLEUM If you'll be my bodyguard ...," July 27, 2016, p. 1 (WOLFE_0002945).

h. Macquarie Research: "Strong Shenandoah Result but Hurdles Remain: The result from the Shenandoah-5 well likely increases the resource potential of the discovery. This could benefit the ultimate economics of the project. However, challenges still remain in lowering the cost of the project, especially given the high pressure for completions. The project will need to compete for capital in a constrained crude oil price environment, which means some innovation will need to take place without compromising safety."[363]

i. Morgan Stanley: "Shenandoah-5 appraisal intersected 1,040ft of net pay, comparable to the Shenandoah-2's *'more than 1,000ft'* with in-line fluid and reservoir properties. This was welcome good news after recent disappointments. Shenandoah-6 will be spud prior to year end, and will step out even further to the east, looking for oil-water contact. On the call listen for conditions needed for sanction, including threshold crude price level. We expect Shenandoah to be viable in a ~$60/bl world."[364]

j. UBS: "The 4th appraisal well, Shenandoah-5, encountered > 1,040 net feet of pay (even thicker than the 1,001 feet in the #2 well), extending the resource in the central-to-eastern limits of the field. The partners plan to run a production liner and secure the well for future production operations. This should address recent investor concerns that the field was compartmentalized and would need a very high oil price to be commercial. The Shenandoah-6 well will spud in 4Q16 and seek to establish oil-water contact which would give indication of a true resource size; this should enable it to determine resource

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[363] Macquarie Research, "Anadarko Petroleum Evaluating a Running Start into '17," July 27, 2016, p. 1 (APC-01329982).

[364] Morgan Stanley, "Anadarko Petroleum Corp 2Q16: Strong Start," July 27, 2016, p. 2 (MS_ANADARKO_000105).

size and progress towards a final investment decision, with first production roughly three years later."[365]

k. Simmons & Company: "Next step is to see Shenandoah 6 well results (testing to find the oil water contact). Shenandoah 6 well spuds later this year. FID is not imminent. APC has much more appraisal work ahead and wants to drive project costs lower to enhance well economics."[366]

290. Similarly, Plaintiffs' investment managers understood that a sanctioning decision would not be made until after Shen-6 was drilled and would depend on the pricing environment.

a. For instance, in its Q2 2016 summary and earnings call notes, Janus Henderson noted: "The Shenandoah #5 well had positive results, extending the field to the east. . . . APC bought into a proportional interest of MRO's Shenandoah stake that was available for sale. APC now has a 33% stake in the project. The Shenandoah #5 well encountered 1,040ft of net pay, a positive data point. . . . For Shenandoah, well #5 delivered positive results. Need to see what well #6 delivers before they can make a sanctioning decision."[367]

b. In November 2016, Janus Henderson wrote that no sanction decision had been made as of November 2016 and that Shenandoah would not be taken to development at then-prevailing oil prices: "Shenandoah - once they understand it better, they can move

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[365] UBS, "Anadarko Petroleum Corp. APC 2Q Beats, Raises Production Guidance, and Boosts Divestiture Target," July 27, 2016, pp. 8-9, 12-13 (UBS_0001260).

[366] Simmons & Company, "Anadarko Petroleum Corp. (APC) Q2'16 Earnings Review: Improving Balance Sheet Through Divestitures," July 28, 2016, p. 1 (PIPER_SANDLER-0003791).

[367] Email from N. Barrett, Janus, to Janus Equity Research re: Anadarko Petroleum (APC): 2Q16 EPS of -$0.60 vs. Consensus of -$0.80, 2Q16 CFPS of $1.31 vs. Consensus of $1.17, July 27, 2016, pp. 1-2 (JanHen_00012802).

forward. Won't take it to development at $45. Will be 1 to 1.5 years before they do anything, likely."[368]

c. Fidelity, another one of Plaintiffs' investment managers, produced a July 2016 presentation from Wood Mackenzie entitled Pre-FID oil projects in this litigation. In the presentation, one slide noted that "[i]f prices remain around $50/bbl then most major projects are at risk of deferral or cancellation without further cost deflation."[369] That same slide included a graphic listing Shenandoah as having a start-up date around 2021, with a breakeven price hovering around $90 to $100/bbl.[370]

291. Anadarko continued to discuss its efforts to continue to appraise the field and explore development solutions throughout late 2016. In its Third-Quarter Operations Report dated October 31, 2016, Anadarko made clear that the commerciality of Shenandoah was still being determined:

> "After completing operations on the Warrior exploration well, the rig is scheduled to drill the Shenandoah-6 appraisal well. This appraisal well is designed to establish the oil-water contact on the eastern flank of the field and further quantify the resource potential. Anadarko and its partners are continuing to work toward determining the commerciality of the Shenandoah field. The company has chosen a Semisubmersible concept to support the potential development as part of these efforts. The FEED engineering on the Semi will continue, while Anadarko continues appraisal drilling to further delineate the opportunity before making a future sanctioning decision."[371]

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[368] Email from Noah Barrett of Janus to Janus Equity Research and Energy Notes, etc., November 21, 2016, (JanHen_00024541).

[369] Wood Mackenzie, "Pre-FID oil projects: Global breakeven analysis and cost curves," July 2016, p. 9, (FIAM-ANAD-004939).

[370] *Id.*

[371] Anadarko Petroleum Corporation, Q3 2016 Operations Report, October 31, 2016, p. 8.

292. The purpose of FEED engineering—which stands for "front-end engineering and design"—is to develop the most cost-efficient production facilities specific to a given field. Investors understood that Anadarko was making an effort to find development solutions for the field, but, as Anadarko continued to emphasize, still needed additional information from appraisal drilling to decide whether to sanction the project.

293. Investors understood that while Anadarko was making efforts to find a development solution, it faced other development challenges, such as the need for 20K technology, and still needed additional information on the resource size.

a. JP Morgan: "The Shenandoah-6 appraisal well is designed to establish the oil-water contact on eastern flank of the field and help quantify the resource potential of the discovery. APC and its partners are evaluating a semisubmersible development concept at Shenandoah for future development."[372]

b. UBS: "At the Shenandoah prospect (33% wi), APC plans to spud the Shenandoah-6 appraisal well which is expected to establish the oil-water contact on the eastern flank of the field and further quantify the full resource potential. The 4th appraisal well, Shenandoah-5, encountered > 1,040 net feet of pay (even thicker than the 1,001 feet in the #2 well), extending the resource in the central-to-eastern limits of the field. The partners plan to run a production liner and secure the well for future production operations. This should address recent investor concerns that the field was compartmentalized and would need a very high oil price to be commercial. The Shenandoah-6 well will spud by YE16 and seek to establish oil-water contact which would give indication of a true resource size; this should enable it to determine resource

[372] JP Morgan, "3Q16 Flash; Upside Results and Portfolio Management Success; Going Out in Style – ALERT," October 31, 2016, p. 2 (APC-01331310).

size and progress towards a final investment decision, with first production roughly three years later. However, the challenge at Shenandoah is learning how to operate in a high pressure environment (20,000 pounds per square inch) so no timing was given on project sanction. While APC continues to evaluate the commerciality of the Shenandoah fields, it has chosen a Semisubmersible concept to support the potential development with FEED engineering ongoing."[373]

c. Ladenburg Thalmann: "Shenandoah: Walker Ridge 51/52/53 (APC 33% WI): APC is preparing to spud the Shenandoah-6 appraisal well, which is designed to establish the oil-water contact on the eastern flank of the field and further quantify the field's resource potential in order to help determine its commerciality. APC's fifth Shenandoah appraisal well encountered 1,040+ net feet of oil pay and expanded the eastern extent of the field."[374]

294. **Conclusion B: Investors understood in late 2016 and early 2017, as Anadarko discussed potential development solutions for Shenandoah, that the prospect would not be developed in the existing economic environment.**

295. In late 2016 and early 2017, Anadarko continued to emphasize that development in Shenandoah would be difficult, both because of the challenging macroeconomic conditions and the cost of any potential Shenandoah development. Anadarko representatives continued to focus on the company's portfolio management, which could include selling assets and/or diverting resources to more productive assets.

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[373] UBS, "Anadarko Petroleum Corp. APC Delivers 3Q CFPS/Production Beat and Raises 2016 Volume and Asset Sale Guidance," October 31, 2016, pp. 12-13, (UBS00061686) (emphasis added).

[374] Ladenburg Thalmann, "Anadarko Petroleum Corporation Initiating Coverage with Buy Rating and $85 Price Target," December 19, 2016, p. 5 (LADENBURG0000023) (emphasis added).

296. For instance, Anadarko emphasized that it would need to adjust to a "volatile" environment, as demonstrated by fluctuating oil prices at the time (see Figure 1, above).[375] On August 16, 2016, Brad Holly, Senior Vice President for Rocky Mountain Region, noted that, even though Anadarko was "excited about Shenandoah," the company was nonetheless "working on successfully navigating a very volatile environment" and would do that by "maintaining [its] financial discipline and investing within cash flows."[376] He emphasized that it would "reduce capital spend and cost structure as [it needed] to stay within that cash flow," maintain its "very active portfolio management," and "continue to be flexible and move money around the globe where we think it makes the most sense."[377] Holly stated that Anadarko would "focus [its] Gulf of Mexico play around [its] current facilities for subsea tiebacks" as part of its efforts to "well position[] [itself] during the downturn."[378] He concluded: "We're positioning the Company to come out of this downturn with abundant liquidity to safeguard against future volatility. We expect exceptional operating results and flexible deployment of our capital, and we'll continue to invest in our future with mid- and long- cycle projects to take advantage of the market conditions when they change."[379]

297. Anadarko continued to express caution about Shenandoah's development throughout late 2016. During Anadarko's November 1, 2016, 3Q 2016 Earnings Call with investors and

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[375] *See* Anadarko Petroleum Corporation, Q1 2016 10-Q, May 2, 2016, p. 48 ("The Company's most significant market risk relates to prices for oil, natural gas, and NGLS. Management expects energy prices to remain unpredictable and potentially volatile.").

[376] EnerCom, Inc., EnerCom Oil & Gas Conference Transcript, August 16, 2016, p. 5.

[377] *Id.*

[378] *Id.* pp. 5-6.

[379] *Id.* p. 6.

analysts, Hollek explained that Anadarko was "far from making an FID decision today" on Shenandoah, highlighting that they needed the results of Shen-6. Walker continued:

> "I think it'd be fair to say that as we contemplate sanctioning Shenandoah, we will be mindful of what we can do on the margin with the capital. And it will be an allocation like it would be for anything where we're looking at what the rate of return is as well as the cash-on-cash return.
>
> A lot of times our industry is very focused on rate of return and not cash-on cash because, as everybody knows on this call, it's great to have an internal rate of return that's 50%, but if you get the cash back in the year, and you're pretty much done, that's a hard treadmill to continue. So we want a cocktail or a mix that gives us really good rates of return with really good cash-on-cash characteristics.
>
> So there could be a role that Shenandoah or another option like that plays in our portfolio. So I don't want to leave people with the view that allocation of capital is purely an IRR-driven derivative. Consequently, we have a portfolio to run, and we will consider whether or not at the time of sanctioning, it makes sense to commercially develop Shenandoah along with our partners or not."[380]

298. Similarly, during a November 17, 2016 Bank of America Merrill Lynch Global Energy Conference, Al Walker spoke about the difficult macroeconomic environment and suggested that Shenandoah would not be sanctioned unless oil prices were higher. He noted that deepwater projects like Shenandoah would not be sanctioned at below $70 a barrel, saying, "I do believe today it will take more than $70 most likely before we see greenfield projects and deepwater basins around the world."[381]

299. He then explained that development in the Gulf of Mexico was facing significant challenges:

[380] Anadarko Petroleum Corporation, Q3 2016 Earnings Call Transcript, November 1, 2016, pp. 17-18.

[381] Anadarko Petroleum Corp, Bank of America Merrill Lynch Global Energy Conference Transcript, November 17, 2016, p. 3.

> "Now, moving into the Gulf of Mexico, I think you've heard us talk a lot this year and even going into last about tiebacks. And it's not that tiebacks all of sudden became in vogue. We've always had them in our portfolio. When oil was $100, we were probably as a company exploring more than we're developing and we weren't necessarily looking at these tiebacks in the same way we might when it's hard today to take an exploration prospect with the rig that is out of market and promote and partner. As typical in our industry, when you put a prospect together, particularly if you have a high working interest, you want to put it together in a way where you can promote some of it out, we get carried on the front-end of the drilling. Well, in the Gulf of Mexico that has pretty much come to a halt. Anybody that's still active in the Gulf of Mexico is unlikely to take a non-op position in somebody else's prospect, because they've got plenty of reasons to want to keep that money in their own pocket, on their own operated prospects. So we started looking really aggressively at our tiebacks and you've seen us do a number of things."[382]

300. Finally, Walker added that they were in an "uncertain period, meaning a period where it's unlikely we're going to see a lot of development of new infrastructure in the Gulf of Mexico."[383]

301. Investors understood that deepwater projects like Shenandoah were unlikely to reach sanction in the then prevailing commodity price environment.

    a. Fidelity, one of Plaintiffs' investment managers, noted the struggling state of the industry, particularly in the Gulf of Mexico:

> "Some interesting contrasts from meetings in Houston recently with companies involved in deepwater, throughout the value chain. There are pockets of significant (and surprising) health. But they remain few and far between, and very much confined to a few players. The overall backdrop remains challenged. No change to our outlook for oil supply from the trip, or the view that we need to be very selective with our investments with deepwater exposure. Gained

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[382] *Id.* p. 6.

[383] *Id.* p. 7.

more conviction post the trip in APC. Continue to avoid offshore drillers, and OSV's. FTI looks less attractive post the trip as well.

...

This brings us to the negative element of Deepwater - new projects. There is very little appetite here, and what projects are under consideration have unique circumstances. These include Mad Dog 2 which is a hybrid green/brown-field BP has been working on for years, and has reworked and downsized. APC has made no decision on Shenandoah, but it is a large discovery, and one with an expiration date where if they don't proceed in roughly the next 18 months they will forfeit the asset. FTI is also close to being award their first integrated project award with Technip, but sizing is likely small and repeatability is questionable. Beyond projects already being worked on, there is essentially no appetite to undertake the exploration programs necessary to support future greenfields.

There are a wide variety of decisions and changes to make, which means the process will take quite some time. It is really hard to see a scenario where deepwater comes roaring back, until there is a price signal of $70+, likely spurred in part by significant declines in the existing deepwater production base that tightens the aggregate oil S/ D balance.

Furthermore, even if a project is ostensibly economic at today's strip, greenfield deepwater projects are still billions of dollars, and take years to execute. That adds to the risk profile of greenfield developments as well. There is of course the possibility of project delays and cost over-runs in the execution phase as well. All of that adds up to the hesitancy we observed around greenfields despite some optically attractive cost reductions. Those cost reductions however are clear benefits to the economics of tie-backs, in conjunction with their lower risk and shorter cycle time.”[384]

b. Similarly, Deutsche Bank noted, “Once the dominant driver of oil growth and capital budgets, the collapse in crude price and rise of US shale have led to the market

[384] Fidelity, “Deepwater => Down, but not out. (But also not growing),” October 10, 2016, p. 40 (FIAM-ANAD-000002).

pronouncing the deepwater as uncompetitive and largely dead (or at least on life support)."[385]

5.2.6. Allegations about Shen-6

5.2.6.1. Plaintiffs' Allegations:

302. Plaintiffs point to two allegedly misleading statements made after Shen-6 was spud. First, during a February 1, 2017 Q4 2016 Earnings Call, Ernie Leyendecker stated that they had found over 1,000 feet of pay in the Shen-5 well and were drilling Shen-6, which was "designed ultimately to be kept as a keeper, and potentially be a producible well ultimately one day when we see ourselves as a final solution for the field."[386] Second, Anadarko's 2016 Form 10-K, filed February 17, 2017, states that Anadarko was "continuing to work toward determining the commerciality of the Shenandoah field."[387]

5.2.6.2. Summary of Conclusions:

303. **Conclusion A: During early 2017, investors understood that any FID would depend on the results of Shen-6, the ability to lower costs, and the price of oil.**

304. **Conclusion B: Investors understood before Anadarko's alleged corrective disclosure that Shen-6 was wet.**

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[385] Deutsche Bank, "Is the Deepwater Dead? F.I.T.T. for investors, Are There Signs of Hope on Deepwater's Horizon?", October 13, 2016, p. 1 (DEUTSCHE0009774).

[386] Amended Complaint ¶ 137.

[387] *Id.* ¶ 138.

5.2.6.3. Support for Conclusions:

305. **Conclusion A: During early 2017, investors understood that any FID would depend on the results of Shen-6, the ability to lower costs, and the price of oil.**

306. After it encountered significant pay at Shen-5, Anadarko spud Shen-6. On January 31, 2017, Anadarko released its Operations Report for Q4 2016. It noted that Shen-6 was spud in December and was "designed to establish the oil-water contact on the eastern flank of the field and further quantify the resource potential." [388] It described the potential development plan, adding, "The FEED engineering on a semi-submersible development concept is ongoing as Anadarko continues appraisal drilling to delineate the opportunity."[389]

307. In early 2017, Anadarko discussed the additional appraisal work that they were doing with Shen-6. During a February 2017 Earnings Call, Leyendecker highlighted the structural complexities of the Shenandoah resource and their lack of knowledge regarding the extent of the resource on the East side of Shenandoah, saying, "As we drilled through the -- past the #2, 3 and 4 wells and learned about a little bit of the complexities, structural complexities, on the feature, we felt we needed some more comfort around the resource in place towards the east as well as trying to penetrate the physical oil-water contact." [390] Leyendecker further noted the reasons for drilling Shen-6: "So the number six well we're drilling today is designed really to test part of the eastern side of the field for reservoir continuity as well as cut some oil-water contacts, which we haven't physically done yet. So we're hopeful, of course, that the well will penetrate those. I can also share with you that

[388] Anadarko Petroleum Corporation, Q4 2016 Operations Report, January 31, 2017, p. 10.

[389] *Id.*

[390] Anadarko Petroleum Corporation, Q4 2016 Earnings Call Transcript, February 1, 2017, p. 15.

the well is designed ultimately to be kept as a keeper, and potentially be a producible well ultimately one day when we see ourselves as a final solution for the field."[391]

308. A "keeper well" is one that the operator hopes to use for production. Yet, as observed, deepwater exploration is risky with many uncertainties and operators face an iterative process to get to sanction. An operator could reasonably consider a well to be a "keeper" at one point in time only to have later additional delineation drilling result in a downgrading of estimated recoverable reserves. Here, Leyendecker emphasized that Anadarko was "hopeful" that Shen-6 would penetrate the oil-water contact, which others at Anadarko had already clarified was required for any potential investment decision.[392] Investors would understand that a "keeper well" would not guarantee sanction, as any FID would still depend upon the commodity-price environment and expected economics of a given development.

309. During the same call, Hollek similarly expressed that they were still "trying to understand our path to sanction" and were "still learning on Shenandoah itself."[393] He highlighted the difficulties in developing the region, noting that there were "multiple Wilcox reservoirs" in Shenandoah, "[s]o each and every one of them may have a separate oil-water contact, and they're likely not connected vertically."[394] He added that they were "treating them

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[391] *Id.*

[392] *Id.*; *see also* UBS, UBS Global Oil and Gas Conference Transcript, May 24, 2016, pp. 11-12 ("Without that contact, that's really hard for us to be able to say exactly with the ranges and the fact that we're in that basin, it's going to be really important for us to be able to do that."); Anadarko Petroleum Corporation, Q2 2016 Earnings Call Transcript, July 27, 2016, pp. 6-7.

[393] Anadarko Petroleum Corporation, Q4 2016 Earnings Call Transcript, February 1, 2017, p. 15.

[394] *Id.* pp. 15-16.

independently" and had to "really understand each and every one of the reservoir flow units there." [395]

310. Commodity prices around this time, discussed in previous sections, continued to worry investors. For instance, in January 2017, Wood Mackenzie indicated that they "believe[d] the region is going to pause in the near future and wait for the cost structure and the long-term view on oil prices to stabilize before embarking on large, capex-heavy projects again."[396] Wood Mackenzie noted that Shenandoah had thus far "produced encouraging results," but "assume[d]" that it would "undergo additional appraisal drilling in 2017 prior to receiving FID" and cautioned that "negative results may result in a bleaker outlook" for Shenandoah and the "Inboard Lower Tertiary as a whole."[397]

311. Market participants acknowledged the difficulties Anadarko was having at Shenandoah and the challenging commodity price environment:

> "Shenandoah (Gulf of Mexico) - We expect management to announce[] results from the Shenandoah-6 appraisal well over the next few months. We believe positive results will allow Anadarko to move ahead with the development of the discovery."[398]
>
> "Shenandoah: $50/bbl breakeven; further clarity on project economics and timing to drive greater credit**.** Based on our conversations with investors, they remain concerned on the potential value and timing of the Shenandoah discovery in Gulf of Mexico."[399]

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[395] *Id.*

[396] Wood Mackenzie, "Deepwater GoM: 5 things to look for in 2017," January 17, 2017, p. 2 (APC-00294820).

[397] *Id.* pp. 1–2.

[398] Goldman Sachs, "Unappreciated GOM production profile to drive the next leg up; Buy," February 5, 2017, p. 4 (GS-002754).

[399] *Id.* p. 14.

> "APC indicated that major Gulf of Mexico greenfield projects like Shenandoah (our target assumes $1/shr) is unlikely to get final approval in a $50-$55 per bbl environment."[400]

312. Prudent management does not greenlight investments that are projected as "breakeven" or marginal. As such, investors understood that oil prices needed to be above $50 per barrel for Anadarko to consider sanctioning Shenandoah.

313. In its February 17, 2017 10-K, Anadarko released additional information that cautioned the market that it might write off Shenandoah. In its February 2016 10-K, Anadarko had disclosed the risk that its "drilling activities may not be productive," as "[d]rilling for oil and natural gas involves numerous risks, including the risk that we will not encounter commercially productive oil or natural-gas reservoirs."[401] In its 2016 10-K, Anadarko added the following to that section:

> "As of December 31, 2016, we had $1.7 billion in suspended well and associated non-producing leasehold costs related to 11 U.S. offshore and international exploration projects, which includes approximately $800 million related to our Shenandoah project in the Gulf of Mexico. Certain of these future exploration and appraisal drilling activities may not be successful and, if unsuccessful, could result in a material adverse effect on our future results of operations and financial condition. While all drilling, whether developmental or exploratory, involves these risks, exploratory drilling involves greater risks of dry holes or failure to find commercial quantities of hydrocarbons. Because of the percentage of our capital budget devoted to higher-risk exploratory projects, it is likely that we will continue to experience significant exploration and dry hole expenses."

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[400] Goldman Sachs, "Anadarko Petroleum Corp. (APC): Mgmt meeting highlights focus on E&P/midstream growth; Buy," March 24, 2017, p. 1 (FIAM-ANAD-009181).

[401] Anadarko Petroleum Corporation, 2015 10-K, February 17, 2016, p. 43.

314. Investors understood Anadarko's decision to highlight the risk of the Gulf of Mexico, coupled with the other cautionary language from the company, as an indication that Anadarko had less confidence in the path forward at Shenandoah.

315. In February 2017, some market participants similarly noted a decline in confidence, expecting a Suspension of Production or potential operational challenges that would delay sanctioning:

   a. Goldman Sachs: "1H 2017: APC plans to spud the Shenandoah #6 appraisal well in late 2016 which it expects to find the oil-water contact. Management believes Shenandoah #6 appraisal well will help determine the next stage of the project. With its 3Q 2016 operations update, APC stated it has chosen a semi-submersible concept to support the potential development as part of these efforts. The FEED on a potential semi-submersible will continue, while the company continues appraisal drilling to further delineate the opportunity before making a future sanctioning decision. The primary terms on certain leases covering the Shenandoah project expired in 2014 but are being held by continuous operations on the Shenandoah project, meaning that the operators cannot discontinue operations at Shenandoah for more than 180 days or such leases will terminate. We expect that APC will eventually file for approval of a Suspension of Production in order to preserve its acreage."[402]

   b. UBS: "At the Shenandoah prospect (33% w.i), APC spud the Shendandoah-6 appraisal well in December and seeks to establish oil-water contact on the eastern flank of the field which would give indication of a true resource size; this should enable it to determine resource size and progress towards a final investment decision, with first

[402] Goldman Sachs, "Anadarko Petroleum Corp. (APC) Unappreciated GOM production profile to drive the next leg up; Buy," February 5, 2017, p. -15 (GS-002754).

production roughly three years later. However, the challenge at Shenandoah is learning how to operate in a high pressure environment (20,000 pounds per square inch) so no timing was given on project sanction. While APC continues to evaluate the commerciality of the Shenandoah fields, it has chosen a Semisubmersible concept to support the potential development with FEED engineering ongoing."[403]

316. Some market participants also lowered their potential range estimates for Shenandoah.

   a. UBS: In February 2014, UBS projected 800 MMBOE,[404] in July 2015 it projected 720 MMBOE,[405] and in February 2017, it projected 400 MMBOE.[406]

317. **Conclusion B: Investors understood before Anadarko's alleged corrective disclosure that Shen-6 was wet.**

318. In February, investors were aware that Shen-6 reached total depth and the partners began drilling a sidetrack well. In its February 21, 2017 10-K, ConocoPhillips explained, "Appraisal drilling continued in 2016 with the fifth Shenandoah well reaching total depth in the third quarter. In February 2017, the sixth Shenandoah well, Shenandoah WR52-3, reached total depth. Drilling of a sidetrack well from Shenandoah WR52-3 also commenced in February."[407]

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[403] UBS, "Anadarko Petroleum Corp. 4Q Cash Flow and Production Beat Expectations; Focus Shifts to Investor Call on March 8th," February 1, 2017, p. 11 (APC-01333349).

[404] UBS, "Anadarko Petroleum Corp. Preview of Anadarko Petroleum's Analyst Day," February 24, 2014, p. 7 (UBS_0000555).

[405] UBS, "Anadarko Petroleum Corp. Strong 2Q EPS/CFPS Beat; Raising Estimates on Higher 2015 Oil Production Guidance," July 29, 2015, p. 11 (UBS00015972).

[406] UBS, "Anadarko Petroleum Corp. 4Q Cash Flow and Production Beat Expectations; Focus Shifts to Investor Call on March 8th," February 1, 2017, p. 11 (APC-01333349).

[407] ConocoPhillips, 2016 10-K, February 21, 2017, p. 7.

319. During its March 14, 2017 Q4 2016 earnings call, Cobalt discussed Shen-6 encountering water, which "by definition makes [Shenandoah] a bit smaller."[408] Cobalt explained that they were sidetracking Shen-6 looking to identify water contacts. It stated that Shenandoah remained "a good size," as indicated by the large discovery at Shen-5, but that its size was not "as good" as other assets it had in its portfolio.[409]

320. Market participants understood that Shen-6 was a wet well as early as March 2017.

   a. Morgan Stanley: "Shenandoah-6 appraisal ... 'encountered wet Wilcox sands' and is being sidetracked to locate oil water contact. Pre-FEED work is ongoing."[410]

   b. TPH: "Assets in GoM: expected timeline of when you'd expect to FID the 3 projects; Shenandoah, what's the significance with the wet appraisal? . . . Shenandoah slightly smaller than others. Previous appraisals suggested the field was big enough to develop. Now testing the flanks, so to find water there is not a surprise. Now drilling another sidetrack to find the oil-water contact. Still buyers out there. Still have appraisal to do on the western side of the field."[411]

321. Before market open on May 2, 2017, ConocoPhillips disclosed in a press release that "[f]irst-quarter earnings were negatively impacted by $101 million of pre-tax dry hole expense, which includes the Shenandoah-6 well in the Gulf of Mexico."[412] Therefore, investors were

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[408] Cobalt International Energy Inc., Q4 2016 Earnings Call Transcript, March 14, 2017, p. 15.

[409] *Id.* p. 10.

[410] Morgan Stanley, "Cobalt International Energy Inc: Discovering GOM Asset Value in 2017," March 14, 2017, p. 338, (STEINHOLT_0009493).

[411] Tudor Pickering Holt Energy, "TPH Research: Cobalt Energy Q4'16 earnings call notes," March 14, 2017, p. 4 (FIAM-ANAD-007649).

[412] ConocoPhillips, "ConocoPhillips Reports First-Quarter 2017 Results; On Track to Deliver 2017 Operating Plan and Accelerate Value Proposition," BusinessWire, 07:00 EST, May 2, 2017, p. 23 (AQD_0010466).

aware that one of the Shenandoah Partners wrote off the Shen-6 dry hole costs before Anadarko disclosed the write-off after market close on May 2, 2017.[413] Given Anadarko's repeated emphasis on needing to find the oil-water contact with Shen-6, investors understood that Shen-6 being a dry hole meant that Anadarko was unlikely to sanction Shenandoah.

5.2.7. Reaction to Alleged Corrective Disclosure

5.2.7.1. *Plaintiffs' Allegations:*

322. Plaintiffs allege that "[t]hroughout the Class Period, Defendants concealed the impairment of Shenandoah even after internal assessments called into serious doubt its economic and/or operational viability" and that, "[o]n May 2, 2017, Defendants filed the 1Q 2017 10-Q, disclosing that Anadarko had 'suspended further appraisal activities' on the Shenandoah project and had taken a $467 million impairment for the purchase price of the leases and a $435 million charge for previously capitalized Shenandoah exploratory drilling costs."[414] Plaintiffs contend that "Anadarko's decision to abandon Shenandoah after years of touting it as 'one of the biggest finds ever' validated the analysis that Frye and others provided years earlier."[415]

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[413] Anadarko Petroleum Corporation, Q1 2017 10-Q, May 2, 2017, p. 13.

[414] Amended Complaint ¶¶ 82-83.

[415] *Id.* ¶ 84.

5.2.7.2. Summary of Conclusions:

323. **Conclusion A: Market participants' reactions to Anadarko's decision to suspend Shenandoah reflect that investors understood before the write-off that Anadarko was unlikely to sanction Shen-6.**

5.2.7.3. Support for Conclusions:

324. **Conclusion A: Market participants' reactions to Anadarko's decision to suspend Shenandoah reflect that investors understood before the write-off that Anadarko was unlikely to sanction Shen-6.**

325. Anadarko reported in its Q1 2017 10-Q that the decision to take the impairment and write-off was to satisfy accounting requirements based on the results of Shen-6 and the then-current level of commodity price: "Given the results of this well and the present commodity-price environment, the Company has currently suspended further appraisal activities. Accordingly, the Company determined that the Shenandoah project no longer satisfies the accounting requirements for the continued capitalization of the exploratory well costs."[416]

326. During the Q1 2017 earnings call on May 3, 2017, Walker, explained that Anadarko would not move forward with a development like Shenandoah in an oil price environment of $50 to $60 a barrel, and that "the actions [Anadarko] took there were driven by the accounting

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[416] Anadarko Petroleum Corporation, Q1 2017 10-Q, May 2, 2017, p. 13.

methodology"[417] and should be "divorced, if you will, from the way in which [Anadarko was] looking at it operationally."[418]

327. On that call, Leyendecker explained the results of the Shen-6 well, saying, "We drilled the original well, which was designed to drill through the oil water contacts, and we did not see the oil water contacts in the well, so we backed up, and we sidetracked the well again towards the number 5 well where we had over 1,000 feet of pay looking for those oil water contacts again. And unfortunately, we did not get to completely prosecute the well to TD. We ran into some mechanical hold problems. We did see a partial section. So it was also inconclusive. And the challenges we've been having out there really are all related to try to image the structural fabric, and it's been one of our difficulties as we drill wells, we've found some surprises, some of them negative and some of them positive."[419] Leyendecker explained that in light of the difficulties they had faced, "[they] felt it was appropriate really to stop and evaluate what [the] path forward would be."[420] He continued: "I think as we look at it today, it's probably a little premature to talk about what the next steps are and that path forward as we're still thinking through what those options are today."[421] He repeated: "We're under under continuous operations under the terms and leases because they've expired. So it requires us to conduct another operation within that period. So we'll be looking . . . at what our options are between now and that period, which is later this year."[422]

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[417] Anadarko Petroleum Corporation, Q1 2017 Earnings Call Transcript, May 3, 2017, p. 6.

[418] *Id.* p. 11.

[419] *Id.* p. 10.

[420] *Id.*

[421] *Id.*

[422] *Id.* p. 18.

328. Market participants' comments reflected that the write-off was not surprising given information that was previously disclosed.

a. JP Morgan: "As previously highlighted by its partners, the Shenandoah-6 appraisal well designed to test the oil-water contact on the eastern edge of the field was unsuccessful, and APC has decided to suspend appraisal activity at the field."[423]

b. Evercore: "Transitions in E&P are challenging, and in many ways 1H17 was likely to prove the apex of the transition for APC. Integrating disparate assets in the Gulf of Mexico (a challenging operating environment, particularly when energy investors crave predictability), completing major asset divestitures which muddle a clear view of the go forward asset base, and transitioning to growth from the core of the US onshore (Delaware) where big growth off a small base will be needed to drive corporate level results were the hurdles. Add to this headlines and fears surrounding a tragic residential explosion two weeks ago in CO that saw APC preemptively shut-in legacy production in the region, a bumpy 2Q oil guide driven by outages and tie-ins in the GoM, and a massive (not completely unexpected) write down at Shenandoah all suggest 1Q was likely a perfect storm of negatives for the stock…Today's update included several notable datapoints in the GoM, including the integration of FCX, strong performance from Caesar/Tonga, and success at Calpurnia. While we (and the street) had viewed as heavily risked, APC announced the Shenandoah-6 appraisal well did not encounter the oil-water contact and recorded a one-time GoM-related impairment of over $500mm ($467mm Shenandoah)."[424]

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[423] JP Morgan, "1Q17 Flash: Unfortunately, It's Deja Vu All Over Again; Stock Reaction Mixed – ALERT," May 2, 2017, p. 2 (JPMS 000018).

[424] Evercore, "In the Teeth of the Transition, 1Q Outlook Poses Challenges to the Thesis," May 3, 2017, pp. 1–2, (FIAM-ANAD-009246).

c. Goldman Sachs: "Tie-back opportunity from existing infrastructure in Gulf of Mexico remains robust; greenfield Shenandoah development unlikely. APC continues to see robust performance from wells that can be tied-back to existing infrastructure in GOM. APC continues to enhance GOM tie-back opportunity: (1) Calpurnia exploration well encountered 60 net feet of oil pay; and (2) APC successfully bid on 16 blocks near existing platforms. Following unfavorable result from the Shenandoah well, APC is unlikely to pursue development of the project at current oil prices (**consistent with previous commentary**)."[425]

d. Cowen: "Shenandoah-6 appraisal well and subsequent sidetrack did not encounter oil-water contact on eastern portion of the field. APC has currently suspended appraisal activity and wrote down the entire Shenandoah prospect which notably impacted 2Q17 EPS. We did not give APC any value for Shenandoah in our model. Focus in GOM now turns to tiebacks in our view."[426]

329. This includes one of Plaintiffs' investment managers, Fidelity, which noted that the write-off was not surprising, as the project was "already going to be tough to get over the finish line":

> "Shenandoah in the GOM was written off, as the most recent appraisal well didn't find oil, in part due to operational issues with drilling the well. This project was already going to be tough to get over the finish line, and with a smaller reservoir they've stepped away from it. Still own the blocks, but

[425] Goldman Sachs, "Anadarko Petroleum Corp. (APC) On track to meet 2017 outlook; lower asset sale proceeds negative," May 3, 2017, p. 1 (GS-002675) (emphasis added).

[426] Cowen and Company, "Anadarko Petroleum Corporation Q1 17 Earnings at a Glance," May 2, 2017, p. 1, (ANADARKO_00000176).

unlikely it will proceed at this point. Disappointing, but not too surprising - I was not assuming anything in my production forecast."[427]

Dated: November 9, 2022

Peter Keller

[427] Fidelity, "Operations good w/ strong outlook, val'n compelling but in sentiment purgatory," May 8, 2017 (FIAM-ANAD-000002).

Appendix A

Curriculum Vitae

BRG | ENERGY & CLIMATE

PETER W. KELLER
BERKELEY RESEARCH GROUP, LLC
810 Seventh Avenue, 41st Floor; New York, NY 10019

Direct: 646.651.4735
Mobile: 914.523.8680
pkeller@thinkbrg.com

SUMMARY

Experienced energy professional involved in oil & gas finance since 1978 and utility/power finance since 2003. Strong skills in transaction negotiation, origination and structuring in both the institutional and corporate banking sectors. Arranged/participated in transactions across the energy spectrum from E&P, midstream, refining & pipeline to nuclear, fossil & renewable generation, to electric transmission & distribution. Strategic advisor to numerous investor owned utilities across the United States. Headed the team responsible for a majority of BNY Mellon's investment grade debt capital markets business. Deep background in industry analysis, policy support, risk management, relationship management and marketing.

Active in various national organizations including the American Gas Association, the Edison Electric Institute, the Nuclear Energy Institute/Institute of Nuclear Power Operations Senior Executive Leadership Program, the Nuclear Decommissioning Trust Conference, the Nuclear Energy Institute and the Utility Pension Fund Study Group. A speaker at industry conferences, workshops and hearings. Drove significant growth over many years across BNY Mellon's largest portfolio outside of financial institutions; successful as a team leader and as the relationship lead on a number of franchise relationships.

EXPERIENCE

BERKELEY RESEARCH GROUP, LLC, New York, NY **2015 - present**
Managing Director - Energy
Joined BRG in 2015 as part of the firm's expansion of its energy practice. Work includes strategic advisory on energy financing, transactional advisory, asset/portfolio optimization, project evaluation/implementation, risk assessment and mitigation, climate risk/energy transition assessments, regulatory support/testimony and expert witness/litigation support.

THE BANK OF NEW YORK / BNY MELLON, New York, NY **1998 - 2014**
Managing Director, Energy Group Head (2007-2014)
Oversight of a $7.4 billion portfolio comprised of the Bank's franchise energy relationships across the U.S. including oil & gas & midstream & oilfield serve and essentially all investor owned public utilities and the TVA. Significant portfolio revenues based on credit/capital markets/syndication income and a broadly diversified group of product cross-sells. Management responsibility for a team of senior relationship officers and analytical, marketing and support staff. Responsibilities included strategic planning, general management, credit oversight/approval, marketing initiatives, divisional budgeting and risk analyses. Responsible for BNY Mellon's activities in the Nuclear Decommissioning Trust (NDT) sector and coordinated the Bank's sponsorship of the annual Nuclear Decommissioning Trust Conference. BNY Mellon was the first bank to structure an NDT, has a dominant position as an NDT trustee and manages a significant portfolio of NDT assets.

Managing Director, Energy Division Head (2005-2007)
Energy East and West Divisions consolidated into a single division under my management. Consolidated group included over 130 relationships in the public utility, oil & gas, oilfield service, refining & marketing, petrochemical and mining sectors. Managed a team of ten relationship officers and support staff. Responsibilities included strategic planning, general management, credit oversight/approval, marketing initiatives, divisional budgeting and risk analyses.

Managing Director, Energy East Division Head (2004-2005)
Promoted from Vice President to Managing Director, responsibilities as noted below.

Vice President, Energy East Division Head (2003-2004)
Promoted to assume management of the Bank's Energy East Division, which included over 65 relationships in the public utility, oil & gas, refining & marketing and mining sectors generating revenues in excess of $40 million annually. Managed a team of four relationship officers and support staff.

Vice President, Oil & Gas Division (1998-2003)
Hired to expand the bank's relationships in the exploration and production sector; also active in the oilfield service and pipeline/diversified sectors. Focus on reserve-based lending and longer-term non-recourse asset financing.

RPI INSTITUTIONAL SERVICES, INC., New York, NY **1981 - 1998**
Principal
RPI provided investment management and advisory services to corporate pension funds and university endowments. As a principal I managed discretionary and non-discretionary accounts handling all phases of locating, evaluating, negotiating, and structuring direct oilfield investments. Originated complex financing for numerous acquisitions, primarily in the offshore Gulf of Mexico, from international major oil companies.

In addition, was a principal in RPI's predecessor firm, Resource Programs, Inc., that advised a broad range of investment bank, commercial bank, brokerage, insurance company and corporate clients on oil and gas direct investments. In that role, managed the field review activities of petroleum engineers, geologists and accountants and provided detailed reports on the technical and administrative capabilities of companies reviewed for our clients.

MIDLANTIC NATIONAL BANK, Newark, NJ **1975-1981**
Corporate Banking Officer
Corporate lender in the National Division of the Corporate Bank, responsible for all clients and prospects in the Midwest U.S. (Minneapolis east through Ohio). Participated in formulating and implementing the bank's Energy Lending Program which involved developing and expanding a portfolio of reserve-based credit facilities with clients in Texas, Colorado and Oklahoma. Traveled extensively and generated significant expansion in relationships. Organized and conducted the bank's annual in-house credit training program in years 1977-1979 (a twelve to fifteen week classroom course in financial analysis and commercial lending).

LITIGATION/ARBITRATION CONSULTING

Georgia Firefighters' Pension Fund, et al v. Anadarko Petroleum, R.A Walker, Robert G. Gwin, Robert P. Daniels and Ernest A. Leyendecker. Expert witness reports, rebuttal, depositions.
July 2021 -

SPM NAM, et al v. SM Energy. Expert witness reports, rebuttals, deposition preparation for testimony.
October 2019 – November 2020

LCT Capital, LLC v. NGL Energy Partners LP and NGL Energy Holdings, LLC. Expert witness reports, rebuttal reports, deposition & testimony.
May 2017 - June 2018, July 2021 -

Michael Christopher v. ArcLight Capital Holdings, LLC, et al. JAMS Arbitration. Deposition.
October 2016.

EDUCATION

Williams College, Williamstown, Massachusetts
1975 - BA, History / Environmental Studies / Economics

New York University, New York, New York
Courses at the Graduate School of Business Administration

AFFILIATIONS

President of the Board - Episcopal Charities of New York
Advisory Committee Member & Grants Policy Committee Chair- Episcopal Charities of New York

Task Force for Puerto Rico and the Caribbean Recovery
Episcopal Diocese of New York

Member
Priory of The Most Venerable Order of St. John

Joint Civilian Orientation Conference, JCOC 83

Marine Corps Executive Forum

Chair of the Search Committee
Former Member of the Vestry
Treasurer
Member of the Investment Committee
St. Matthew's Episcopal Church, Bedford, New York

Member of the Bedell Fund Commission
Foundation established to strengthen the Episcopal Church through funding of major capital projects and clergy support

Member,
Former President, Bedford Village Chowder & Marching
Not-for-profit community organization supporting community youth organizations and activities and providing college scholarships in Bedford, New York

Former Member of the Vestry
Clerk of the Vestry
The Church of St. Mary the Virgin, Chappaqua, New York

Trustee Emeritus
Former Treasurer
Hebron Academy, Hebron, Maine

Former Class Agent
Capital Campaign Special Gifts Committee Member
Williams College, Williamstown, Massachusetts

BRG
Berkeley Research Group

Peter Keller Structured Financings BNY/BNY Mellon

Burlington Resources	**Lost Creek Gathering Company** $66MM 10 year non-recourse financing, backed by a ship-or pay contract, of a 122 mile pipeline to connect the Madden Field in WY to the CIG mainline.	**2000**
Coastal Corp.	**Aruba Coker Trust** $359MM 7.5 year securitized synthetic lease financing for the installation of a delayed coker at the Aruba refinery	**2000**
Coastal Oil & Gas	**Santa Rita Capital (Coastal Oil & Gas and The University of Texas)** $350MM 6 year non-recourse volumetric production payment, supported by Texas reserves of Coastal Corporation.	**1999**
El Paso Corp.	**Mustang Investors, LLC** $970MM 5 year off balance sheet, minority interest, tax driven financing in a bankruptcy remote SPV formed to monetize certain pipeline and financial assets of El Paso	**2002**
Murphy Oil Corp.	**MOCL/CMB SPV** $575MM 5 year amortizing structured financing, involving a forward sales contract supporting Murphy's acquisition of Beau Canada Exploration, Ltd.	**2001**
Ocean Energy, Inc.	**Ocean Gantor Trust** $137MM 5 year lese financing of a (at the time the largest ever) spar-based floating production platform at Nansen/East Breaks Block 602 in the deepwater Gulf of Mexico	**2001**
TOSCO Corp.	**Tosco Trust 2000-E** $600MM 5 year special purpose grantor trust financing the acquisition of 391 Exxon/Mobil stations from Exxon (to satisfy DOJ issues connected to Exxon's acquisition of Mobil).	**2000**
Transocean Sedco Forex	**Discoverer Enterprise Hull Financing** $290MM non-recourse hull financing for a fifth generation double hulled dynamically positioned, dual derrick deepwater drillship, backed by 10 year full-payout lease from BP Americas	**1999**
Valero Energy Corp.	**Valero Coker Trust** $290MM 6 year synthetic lease financing the installation of a delayed coker at Valero's Texas City, TX	**2002**

Peter Keller Reserve Based Borrowing Base Financings BNY/BNY Mellon

Cabot Oil & Gas	end date reflects transition to balance sheet loan	1998-2003
EEX Corp.	acquired by Newfield Exploration in 2003	2000-2003
Forest Oil	end date reflects transition to balance sheet loan, subs merged with Sabine	2000-2004
Houston Exploration	sub. of Brooklyn Union Gas, acquired by Forest Oil in 2007	1999-2002
Newfield Exploration	end date reflects transition to balance sheet loan	2000-2003
Westport Resources	acquired by Kerr-McGee in 2004	2001-2004

Peter Keller Institutional Acquisitions/Project Financings RPI Institutional Services

Institutional investors in RPI-originated transactions: Bard College, Frigidare Pension Trust, GE Investment Corp., GMAMCo, General Motors Hourly Employes Trust, General Motors Salaried Employes Trust, Owens-Illinois Pension Trust, The University of Texas System

Seller	Assets/Fields	
Amoco	Port Hudson Field	1993
ARCO	Chandeleur Sound Block 25, 99 well offshore package	1989
	Chandeleur Sound Blocks 40 & 41 offshore package	1994
Chevron	Main Pass Block 35, originally 134 wells	1993
Chevron	Main Pass block extension	1994
Chevron	South Bosco, multiple onshore fields	1993
Chevron	Black Bay Complex, 8 fields, 90 wells	1992
Various	Anschutz Ranch East	1994
	Midway-Sunset	
	South Pass, multiple blocks	
	Spraberry Package	
W&T Offshore	West Delta 30 Field, Producing Property/Seismic Delineated Exploration	1994

Prior Testimony of Peter Keller

1. SPM NAM, et al v. SM Energy. Expert witness reports, rebuttals, deposition preparation for testimony (October 2019 – November 2020)
2. LCT Capital, LLC v. NGL Energy Partners LP and NGL Energy Holdings, LLC. Expert witness reports, rebuttal reports, deposition & testimony (May 2017 - June 2018, July 2021-ongoing)
3. Michael Christopher v. ArcLight Capital Holdings, LLC, et al. JAMS Arbitration. Deposition (October 2016).

Appendix B - Materials Relied Upon

1. Pleadings

1. Amended Complaint

2. Expert Reports

2. Expert Report of Bjorn I. Steinholt, CFA, dated October 1, 2021

3. Securities and Exchange Commission Filings

3.1. Anadarko Petroleum Corporation

3. Anadarko Petroleum Corporation, Q1 2013 10-Q, May 6, 2013
4. Anadarko Petroleum Corporation, 2014 10-K, February 20, 2015
5. Anadarko Petroleum Corporation, 2015 10-K, February 17, 2016
6. Anadarko Petroleum Corporation, Q1 2016 10-Q, May 2, 2016
7. Anadarko Petroleum Corporation, Q2 2016 10-Q, July 26, 2016
8. Anadarko Petroleum Corporation, Q3 2016 10-Q, October 31, 2016
9. Anadarko Petroleum Corporation, 2016 10-K, February 17, 2017
10. Anadarko Petroleum Corporation, Q1 2017 10-Q, May 2, 2017

3.2. Other Shenandoah Partners

11. Cobalt International Energy Inc., 2014 10-K, February 23, 2015
12. Cobalt International Energy Inc., 2015 10-K, February 22, 2016
13. Cobalt International Energy Inc., 2016 10-K, March 14, 2017
14. ConocoPhillips, 2014 10-K, February 24, 2015
15. ConocoPhillips, 2016 10-K, February 21, 2017
16. Marathon Oil Corporation, 8-K, February 18, 2015

4. Investor Conference Transcript/Presentation

4.1. Anadarko Petroleum Corporation

17. Anadarko Petroleum Corporation, Presentation, March 12, 2012
18. Anadarko Petroleum Corporation, Investor Conference Transcript, March 13, 2012
19. Anadarko Petroleum Corporation, Q1 2013 Earnings Call Transcript, May 7, 2013
20. Anadarko Petroleum Corporation, Investor Conference Slides, March 4, 2014
21. Anadarko Petroleum Corporation, Investor Conference Transcript, March 4, 2014
22. Anadarko Petroleum Corporation, Q1 2014 Earnings Call Transcript, May 6, 2014
23. Anadarko Petroleum Corporation, Q3 2014 Earnings Call Transcript, October 29, 2014
24. Anadarko Petroleum Corporation, "Developing Industry Solution for 20,000 psi Subsea Developments," November 19, 2014, https://www.spegcs.org/media/files/files/b06de440/2014-11-19_20A_HPHT_Presentation_Jim_Raney.pdf
25. Anadarko Petroleum Corporation, Q4 2014 Earnings Call Transcript, February 3, 2015
26. Anadarko Petroleum Corporation, Capital Program and Guidance Call Slides, March 3, 2015
27. Anadarko Petroleum Corporation, Capital Program and Guidance Call Transcript, March 3, 2015
28. Anadarko Petroleum Corporation, Q1 2015 Earnings Call Transcript, May 5, 2015
29. Anadarko Petroleum Company, UBS Global Oil & Gas Conference Transcript, May 20, 2015
30. Anadarko Petroleum Corporation, Q3 2015 Earnings Call Transcript, October 28, 2015
31. Anadarko Petroleum Corporation, Q4 2015 Earnings Call Transcript, February 2, 2016
32. Anadarko Petroleum Corporation, Credit Suisse Energy Summit Transcript, February 24, 2016
33. Anadarko Petroleum Corporation, Guidance Update Call, March 1, 2016
34. Anadarko Petroleum Corporation, Q1 2016 Earnings Call Transcript, May 3, 2016
35. UBS, UBS Global Oil and Gas Conference Transcript, May 24, 2016
36. Anadarko Petroleum Corporation, UBS Global Oil & Gas Conference Presentation, May 24, 2016
37. Anadarko Petroleum Corporation, J.P. Morgan Energy Equity Investor Conference Transcript, June 28, 2016
38. Anadarko Petroleum Corporation, Q2 2016 Earnings Call Transcript, July 27, 2016
39. EnerCom, Inc., EnerCom Oil & Gas Conference Transcript, August 16, 2016
40. Anadarko Petroleum Corporation, Q3 2016 Earnings Call Transcript, November 1, 2016
41. Anadarko Petroleum Corp, Bank of America Merrill Lynch Global Energy Conference Transcript, November 17, 2016
42. Anadarko Petroleum Corporation, Q4 2016 Earnings Call Transcript, February 1, 2017

43. Anadarko Petroleum Corporation, Q1 2017 Earnings Call Transcript, May 3, 2017
44. Anadarko Petroleum Corporation, Q2 2017 Earnings Call Transcript, July 25, 2017

4.2. Other Shenandoah Partners

45. Cobalt International Energy Inc., Q4 2014 Earnings Call Transcript, February 23, 2015
46. Cobalt International Energy Inc., Q4 2016 Earnings Call Transcript, March 14, 2017
47. Cobalt International Energy Inc., Q1 2016 Earnings Call Transcript, May 3, 2016
48. Cobalt International Energy Inc., Q2 2013 Earnings Call Transcript, July 30, 2013
49. ConocoPhillips, Q4 2014 Earnings Call Transcript, January 29, 2015
50. ConocoPhillips, Q1 2013 Earnings Call Transcript, April 25, 2013
51. Marathon Oil Corporation, Q3 2015 Earnings Call Transcript, November 5, 2015

5. Operations Reports

52. Anadarko Petroleum Corporation, Q4 2014 Operations Report, February 2, 2015
53. Anadarko Petroleum Corporation, Q3 2015 Operations Report, October 27, 2015
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